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A mantra for me since joining EDUCAUSE four years ago has been that the future of higher education information technology is not IT professionals talking more intensively to each other but, rather, IT professionals broadening the conversation to include other institutional leaders and, ultimately, the campus president or chancellor. This has been far more than a pithy turn of phrase for me, and my travel schedule is perhaps the best expression of my commitment to making these connections, as I have been intentionally seeking out opportunities to tell the story of higher education information technology to varied audiences of institutional leaders. In particular, having been a provost and college president, I’ve felt that this is a group I uniquely understand. So recently I jumped at the chance to join a session at the summer meeting of the American Association of State Colleges and Universities (AASCU), one of the six higher education presidential associations.

AASCU’s Summer Council of Presidents is a professional development opportunity for state college and university presidents to share ideas and knowledge with other presidents and chancellors, both new and experienced. I was honored to moderate a session on “Strategic IT,” beginning with a short presentation and facilitating a conversation with AASCU President Mildred García (also former president of California State University Fullerton and California State University Dominguez Hills, both AASCU institutions) and California State University Fresno CIO Orlando Leon. I’ve been writing and speaking about the topic of strategic IT for over a year, but this event brought together primarily campus CEOs, and I couldn’t have been more encouraged by what unfolded over the 90-minute session.

It was no surprise to me that cybersecurity and privacy (#1 and #3 on the EDUCAUSE Top 10 IT Issues for 2019) were top-of-mind for presidents and chancellors or that the audience members resonated with the institutional risks—financial, reputational, and beyond—involved. Recognizing that state universities, like many other institutions, frequently struggle for resources and staffing, I was pleased to share what EDUCAUSE can contribute on information security to member institutions. There is no better example

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Community Is About Connection

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than cybersecurity when it comes to demonstrating the institutional value of information technology. Strong IT operations are a powerful defense, but a strategically placed CIO is best able to ensure the coordinated approach needed to raise awareness across campus departments.

The conversation at the Summer Council repeatedly returned to innovation. Clearly, technology offers great promise in dealing with institutional challenges, from the need for improved efficiency to the need for better student outcomes in retention and graduation rates. This lens provided a context in which to share the case for including CIOs in the college/university cabinet. At the start of the session, Leon conducted a live-polling exercise that revealed only around half of the presidents reported that their senior IT leader had a place on the senior cabinet. All three of us shared our perspectives in support of having CIOs sit on the cabinet, reflecting the conclusions of the Association of Governing Boards (AGB) 2017 campus innovation study, which concluded: “The president needs to be certain that the institution’s commitment to technology is well funded and staffed; however, presidents must also consider the strategic placement of technology within the organization. It will prove difficult, for example, for technology to serve as a strategic asset for innovation if the CIO is not at the table when key decisions are made at the cabinet level.”

Coincidentally, at around the same time as the AASCU Summer Council, EDUCAUSE was wrapping up a new report, The Higher Education CIO, 2019, in which we examined the effects of cabinet placement for CIOs. The report shows that CIOs who are on the president’s cabinet are (four or five times) more likely to “almost always” shape or influence academic, strategic, and administrative directions. As technology becomes increasingly connected to everything we do—and plays an ever more critical role in creating a compelling student experience—the strategic placement of the CIO makes an important difference.

Since only around one-third of the presidents live-polled at this session considered themselves well-informed on technology topics, I shared former CIO Brian Voss’s exasperated complaint that it is simply no more acceptable for presidents to claim they don’t understand IT than it would be for them to say they don’t understand budgets, fundraising, faculty issues, or government relations! I strongly believe that sessions like this are valuable for drawing attention to the strategic nature of technology in 2019 and beyond, as well as for highlighting how presidents can become better informed, with the CIO taking a lead in this effort. As the session underscored, IT innovation has the potential to bring about positive change in areas such as student success, efficiency, and effectiveness across the institution.

Based on illuminations provided by Garcia and Leon, as well as the number and quality of questions from the audience, I left this session convinced that we need more conversations like this in the future, especially as digital transformation gains traction at colleges and universities around the world. ■

Notes
5. Brian Voss, “It’s Time Presidents Stop Getting Away with Saying ‘I Don’t Understand IT,’” LinkedIn, April 12, 2016.

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Three Wishes for Higher Education

Gail Mellow is retiring as president at LaGuardia Community College, but I hope that doesn’t mean she’s leaving the higher education scene altogether. Anyone who cares a whit about good teaching—or needy students getting their shot—should hope the same.

The institution she leads serves some 50,000 students, many of them low-income, immigrants, or first-generation college students—or, in some cases, all three. So it’s not surprising that Mellow has emerged as a national advocate for increasing access to higher education. But what I’ve always admired is the way she fights to make sure her students are put in close contact with tech companies and other desirable employers that might otherwise overlook a community college. “That, and her frequent public reminders that even students in the most practical of two-year programs benefit from ideas drawn from liberal-arts curricula. . . .

I’ve never been bored when talking to Mellow. But usually she’s answering my questions. So when I caught up with her last week, I gave her the platform, by asking her to list her three wishes for higher education. In order, they are:

1. “That we in higher education are able to effectively destroy the false narrative that college is not a good investment.”

Mellow says that narrative “has been perniciously advocated to the particular disadvantage of low-income students.” She’s not arguing that college works out for every single student. But she distrusts the anti-college tropes increasingly sounded by “too many voices in the media and other places,” particularly in the past eight years. When you look at the data on how higher education produces wage changes and life changes for college graduates, she notes, “it’s very hard to say it’s not worth it.”

2. “That colleges begin to take teaching seriously. Teaching is an art, but improving teaching is a science.”

This is one of her passions. She’s co-written a book on the subject and speaks often about the need to adapt teaching techniques in light of changes in technology and the American college population. (At a conference I attended not long ago, Mellow was making that case: Higher education could no longer assume, she said, that “even if you were a godawful professor, it didn’t matter.”) Taking teaching more seriously, she tells me, would require different incentives. It’s easier to reward professors for their research than for their teaching, she says, because good research is easier to measure.

3. “That higher education in America would understand that it’s a system and start acting like one.”

Honestly, this one threw me for a minute. I know that American higher education isn’t a system. But most students don’t. That was her point.

Sure, there are still plenty of students who enroll in college at 18 and graduate from the same institution four years later. But that hasn’t been the experience for many students for many years. They start at a community college, stop out for a while, and then maybe try another college a few years later. Or they cobble together credits from a bunch of online classes or maybe even through prior-learning credits; they try to enroll in a two-year or four-year institution to complete their degree, but are required to repeat courses or take extra credits in the process. There’s a name for this phenomenon, and it isn’t even new: “student swirl.”

It’s time college leaders “think about college the way students do,” Mellow says. Doing so could also help small colleges meet the enrollment and diversity challenges many are now facing. “Because we never acted as a system, these small liberal-arts colleges have never made a concerted effort to be partners with community colleges,” she says. If they did, they’d “immediately diversify the population” they enroll.

OK, I can already predict the response from small-college leaders on that diversity shot. But now you know why it’s fun to talk to Mellow. She retires in August. She isn’t sure what’s next, besides more reading for pleasure, but she says she will certainly continue her advocacy.
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SUSTAINABILITY, SOLIDARITY, AND COMMUNITY IN HIGHER EDUCATION

By Kathleen Fitzpatrick
Rebuilding a relationship of trust between higher education institutions and the public they ostensibly serve is going to require that we reground our institutions and the work that we do in them. This will involve what I call generous thinking: focusing our practices and our modes of communicating around building sustainability, solidarity, and community both on campus and across campuses. This will also demand a radical approach.¹ The necessary change can’t be made incrementally but instead requires a paradigm shift—as Chris Newfield notes in the conclusion to his book about public universities, The Great Mistake.² Currently there is no route, no approach, no tool that can take us from where we are to where we need to be.
As Tressie McMillan Cottom has noted of the crisis that she has seen growing in higher education today: “This is not a problem for a technological innovation or a market product. This requires politics.” The problem, after all, begins with politics: the American public university that not too long ago served as a highly accessible engine of social mobility, making a liberal-arts-based education broadly available, has been utterly undone. Today we are facing not just a drastic reduction in that institution’s affordability but also an increasing threat to its very public orientation. Rampant privatization is shifting the burden of paying for higher education from the state to individual students and families and is turning the work of the institution from the creation of a shared social good—a broadly educated public—to the production of market-oriented individual benefit.

This turn from focusing on the social good to privileging individual benefit is by no means restricted to higher education today. As a new project that I’m beginning to research explores, this turn characterizes contemporary internet culture as well. Whatever the original expectations for “social media” may have been, a significant part of what has led us to the mess we find ourselves in today—with corporate entities tracking our every move while ignoring (or abetting) the growth of violent radical movements just under the surface, undermining not only how we interact with one another in casual ways but the very organization of our formal, public, political lives—is a desperately flawed model of sociality, one that is in fact not just un-social but anti-social. These structures allow us to talk to one another and to form connections with those who share our interests and concerns, for sure, but they are predicated on a hyperindividualism that is not just contrary to but actually corrosive of the kinds of deliberation necessary for a productive public life.

It’s bad enough that this failure of sociality dominates so much of our online experience, but the damage does not stop there. Hyperindividualism affects our colleges and universities as well. I believe this is one of the reasons that we are facing what Inside Higher Ed has called “a larger than typical decline in confidence in an American institution in a relatively short time period” according to a 2018 Gallup poll. This falling confidence cannot be simply dismissed as evidence of an increasingly entrenched anti-intellectualism in American life—though without doubt, there is that too. Rather it must be understood as evidence that higher education has, for the last several decades, been operating simultaneously under two conflicting paradigms. On the one hand is an older paradigm, largely operative within the academic community, in which colleges and universities serve as producers and disseminators of knowledge; on the other hand is a more recent paradigm in which colleges and universities serve as producers and disseminators of market-oriented credentials designed to promote individual gain. The crisis in higher education today stems from the incommensurability of these two paradigms and also from the fact that both of them are failing, if in different ways.
More than fifty years ago, Thomas Kuhn noted in *The Structure of Scientific Revolutions* that as a scientific paradigm becomes beset by anomalies for which the paradigm cannot account, the community that relies on that paradigm is thrown into crisis. The resolution of that crisis requires the discovery of an entirely new model, one that can reorder the work done by the community and that can draw the community out of what Kuhn describes as the “period of pronounced professional insecurity” that appears when normal science ceases to function normally. In Kuhn’s model, this crisis can be resolved only by what he famously called a paradigm shift, the cataclysmic transformation from one way of understanding how science operates to another. I believe we are desperately in need of such a paradigm shift if higher education, as we want it to be, is to survive. All of us who care about the future of higher education—faculty, staff, administrators, students, parents, policymakers, trustees, and more—must reorient our thinking about the work of colleges and universities. This work needs to transition from a focus on the creation of individual benefit, grounded in all of the competition that structures every aspect of life in contemporary higher education institutions, to a focus on the college/university’s role in building community.

Some of my thoughts about sustainability, solidarity, and community have evolved from my work over the last several years with Humanities Commons, a nonprofit, community-developed and community-governed network serving humanities scholars and organizations. Humanities Commons aspires to two of my own beliefs: first, that higher education, along with the individual scholars and instructors engaged in it, will benefit from all of us doing more of our work in public, where the publics that we need to support our institutions can begin to see the significance of what we do; and second, that higher education leaders must do everything they can to resist and reverse the privatization that has overtaken their institutions, restoring service to the public good not just in their mission statements but in the heart of their actual missions. Only this return to a fully public orientation—even among those colleges and universities that we call “private”—can allow us to build the kind of community that can sustain them.

Part of resisting privatization, for both scholars and their institutions, involves turning away from some of the externally developed and deployed systems on which we have become dependent and instead reserving our investments, and our labor, for systems and platforms and infrastructures whose missions genuinely align with our own, whose values mirror our own, and to whose governance we can contribute. We need collectively to turn our attention to developing the shared, publicly oriented systems that we can count on to support us as we develop new modes of open knowledge sharing, modes that might help higher education return to its mission of public service. But developing this form of community-supported infrastructure will require some careful thinking about the relationships that will be essential to build and maintain it and the work that will be necessary to make the infrastructure sustainable.

The issues that I’m discussing had been developing for quite some time, but they came into stark visibility for me in August 2017, when bepress announced that it had been purchased by RELX, formerly known as Reed Elsevier and the multinational parent company of the publishing behemoth Elsevier. Bepress was founded in 1999 by three UC Berkeley professors in order to provide open-access publishing and repository services to higher education institutions. Bepress thus grew out of the academy and was widely seen as operating with the values of the academy at its heart. As the bepress website notes, over 500 institutions have purchased bepress services in order to disseminate and preserve the work being done on their campuses in openly accessible ways. But in one fell swoop in August 2017, these institutions discovered that they were now effectively paying Elsevier for the ability to provide an open alternative to the increasingly monopolistic scholarly communication channels owned by corporate publishers such as Elsevier.

What had served for years as a key piece of scholarly infrastructure—built and run by academics, for the academic community—appeared to have been turned on that community. It’s not as though anyone was unaware that bepress was a commercial service all along, but it was viewed as one of the “good guys,” and the costs of outsourcing infrastructural needs to them had been balanced against the often impossible task of maintaining locally hosted repository and publishing systems. Bepress provided what many saw as best-of-breed functionality at a reasonable price, and it supported library leaders’ desire to connect the gathering and preservation of research materials with the ability to make them openly available to the world. But the acquisition of bepress by RELX put library leaders in the position of unintentionally supporting a growing corporate control not just of scholarly publishing but of the entirety of the research workflow, from discovery through production to communication. In addition, the acquisition left them anxious about their fundamental ability to control the infrastructures on which they rely in promoting greater public access to scholarship produced on their campuses. As a result, serious conversations have since focused on means of supporting open-source, academy-owned, and academy-controlled infrastructure.

This is not an impossible move, by any stretch, but it’s harder than it might sound. Long-standing open-access, open-infrastructure projects like arXiv point to some possible areas of concern. By every reasonable measure, arXiv has been exemplary—in its uptake, in its independence, and in the ways that it has helped to transform the fields...
that it serves. But in some crucial ways, arXiv has experienced what can only be called “catastrophic success”—a crucial, paradigm-shifting project whose growing annual operating costs and mounting infrastructural requirements have demanded increasingly creative mechanisms to support the platform. So in 2010, the arXiv team at Cornell began the challenging process of building a coalition of libraries willing to work together to support the resource. But our institutions, as we unfortunately know, are largely not structured to support this work of cross-institutional collaboration. First, they’re far more prone to treat such resources as grounds for competition and so become possessive of them. Second, the community-building required in order to collaborate becomes yet another form of labor added on top of maintaining the resources themselves. I do not know the extent to which such difficulties may have played a role in arXiv’s January 2019 move from the Cornell University Library to Cornell Computing and Information Science. It’s entirely likely that the move is a matter of infrastructural pragmatics. Even so, the challenges of maintaining the kind of cross-institutional coalition that is necessary to sustain such a crucial resource remain.

Another example, with a different narrative, can be found in the Samvera project. Recognizing that no single institution could possibly develop the full suite of systems on which institutional repositories rely, developers at several institutions came together to create a collective solution. As the proverb and the Samvera website have it, if you want to go far, go together. But this distributed developer community, like all other such communities, has faced some challenges in coordination—challenges that have caused it, as the proverb also reminds us, to go more slowly than it might. Ensuring the ongoing commitment not just of the individual developers involved in the project but also of the institutions for which the developers work is not a simple matter.

The foundation of the challenges that arXiv and Samvera have faced is the same as that faced by any number of other projects and programs and initiatives: sustainability. This is an issue I’ve been thinking a fair bit about of late, again as a result of my involvement with Humanities Commons. My colleagues and I have been working to ensure that Humanities Commons will be able to thrive well into the future. Those attempts have in turn been encouraged by the funders and other organizations that have supported the network’s development to this point; they too would like to see the network thrive, but they cannot support it indefinitely. We need, they reasonably suggest, a plan for demonstrating that the
The social aspect points not just to the determination of a group of people to support a particular project, but to the determination of those people to support their groupness; not just to their commitment to the thing they’re doing together, but to their commitment to the concept of “together” in the first place. Ensuring that these commitments are sustained is a necessary precondition for the other kinds of sustainability that we’re hoping to work toward.

This notion—of the role of “community” in community-supported software and of the best ways of building and sustaining community—raises the key question of what we mean when we talk about community. As Miranda Joseph argues in Against the Romance of Community, the concept is often invoked as a placeholder for something that exists outside the dominant economic and institutional structures of contemporary life, a set of ostensibly organic felt relationships that harken back to a mythical premodern moment in which people lived and worked in direct connection with one another, without the mediating forces of modern capitalism. “Community” in this sense, and in Benedict Anderson’s sense, is an imagined relationship, and even an imaginary one, as its invocation is designed to yoke together bodies whose existence as a group is largely constructed. It’s a concept often used both idealistically and as a form of discipline, a claim of unity that smooths over and thus suppresses internal difference and disagreement. As Joseph points out, the notion of community is often deployed as if the relationships that it describes could provide an antidote to or an escape from the problems created by contemporary political and economic life. But this suggestion serves to network will, at some point in the future, be able to support itself.

Sustainability of this sort is tied up in revenue models, in business plans, in cost recovery. For a nonprofit entity, sustainability is forever tied to economic concerns that are very often divergent from, if not at odds with, the nonprofit’s primary mission. As a result, these nonprofits remain precarious; one small miscalculation can make the difference between survival and collapse. But sustainability broadly understood extends to domains beyond the economic. There is environmental sustainability, in which we attempt to ensure that we do not consume more resources than can be developed and that we do not produce more waste than can be managed in the near term. There’s also technological sustainability, in which we attempt to ensure that projects conform to commonly accepted standards that will enable the future stability and growth of those projects.

All of these forms of sustainability are important, to varying degrees, to providing for the future of nonprofit and open-source projects. But there’s another form that gets a good bit less attention, and that I increasingly think precedes economic or environmental or technical sustainability: social sustainability. The social aspect points not just to the determination of a group of people to support a particular project, but to the determination of those people to support their groupness; not just to their commitment to the thing they’re doing together, but to their commitment to the concept of “together” in the first place. Ensuring that these commitments are sustained is a necessary precondition for the other kinds of sustainability that we’re hoping to work toward.
distract us from the supplementary role that community in fact serves with respect to capitalism, filling its gaps and smoothing over its flaws in ways that permit capitalism to function without real opposition. So we call upon the community to support projects that the dominant institutions of the mainstream economy will not. And this is how we ended up here: conducting fundraising campaigns on social media to support people facing major health crises, rather than demanding universal health care; and holding bake sales to supplement funding of elementary schools, rather than calling for full funding for education. “Community” becomes, in this sense, an alibi for the creeping privatization of what should be social responsibilities.

We must be careful in issuing calls to build community. Such calls, put forth uncritically, not only run the risk of enabling the institutions that structure contemporary life to absolve themselves of responsibility for public care but also run the risk of essentializing a highly complex and intersectional set of social relations, treating those relations as if they were a simple, single thing. At the same time, some important uses for the notion of community remain, uses that might benefit from an analogy to Gayatri Spivak’s “strategic essentialism.” In these uses we might simultaneously recognize that whereas our calls to community are flawed, in fact impossible, they are nonetheless useful as organizing tools. We might thus begin to think of the call to community not as an invocation of organic unity but instead as a form of building coalitions, of developing solidarity.

Solidarity itself is a challenged concept: there are important questions to be asked about solidarity with whom and for whom. Women of color, for instance, have pointed out the extent to which white feminist appeals to solidarity reinforce white supremacy and demand that black women put the issue of race aside in favor of a gender-based unity that overwhelmingly serves white women’s interests. Indeed, the author Mikki Kendall established the Twitter hashtag #SolidarityIsForWhiteWomen in order to call attention to such demands. So I don’t want to make it sound as though “solidarity” can serve as an unproblematic substitute for “community.” I remain convinced, however, that there are stronger forms of solidarity to be found, forms that do not demand that individuals seeking redress for institutionalized injustices drop their own issues and get in line. Instead, these forms of solidarity recognize that the issues raised by those individuals are issues for all of us and that we must stand together in support of needs that may not necessarily seem to be our own. And this is the form of solidarity that I’m seeking, a form that I believe is

We might begin to think of the call to community not as an invocation of organic unity but instead as a form of building coalitions, of developing solidarity.
a prerequisite for successful, sustainable development of nonprofit, open-source, community-owned networks and platforms.

What’s the connection? For me, sustainability and solidarity connect through the work of Elinor Ostrom. Ostrom was not just the first woman to win the Nobel Prize in economics; she remains (to date) the only female Nobel laureate in the field. Her work focused on common-pool resource management. She argued fiercely against the conventional wisdom that the so-called tragedy of the commons was an inevitability, insisting that community-based systems and structures for ensuring the sustainability of resources were possible, provided the right modes of self-organization and self-governance were in place.

First let’s focus a bit on what is meant by the notion of common-pool resources. Resources are generally understood by economists to fall into one of four categories, based on whether the resources are excludable (i.e., whether individuals can be prevented from using them) and whether they are rivalrous (i.e., whether one individual’s use precludes another’s). First, public goods are those resources that are both nonexcludable and nonrivalrous, meaning that no one can be prevented from using them and that no one’s use reduces the availability of the resources for use by others. Second, private goods are both excludable and rivalrous; they can be restricted for use by paying customers, and their consumption by one customer can diminish the availability of the resources for another customer. These private goods are market-based products, typically produced and distributed for profit. Third, club goods are those that are excludable but nonrivalrous—those that are restricted to paying customers but are not diminished by any one customer’s use. And finally, goods that are nonexcludable but rivalrous are common-pool resources: it is these goods to which the “tragedy of the commons”—the overuse of shared natural resources—can apply.

At the root of the tragedy of the commons lies the “free-rider problem,” which derives from the assumption that when individuals cannot be prevented from using commonly held resources, but also cannot be compelled to contribute to them, some number of individuals will avail themselves of the resources without contributing to the support of those resources. As the number of free-riders grows, the resources become prone to overuse and eventually become unsustainable. Before Ostrom, the only means imagined to help prevent the tragedy of the commons was external regulation, whether through privatization or nationalization. But as Ostrom argued in her 1990 book Governing the Commons, this model—like other models such as the “prisoner’s dilemma”—was based on a particular, and particularly pessimistic, view of human possibility, one that could not escape from its own metaphor.

What makes these models so dangerous—when they are used metaphorically as the foundation for policy—is that the constraints that are assumed to be fixed for the purpose of analysis are taken on faith as being fixed in empirical settings, unless external authorities change them. . . . I would rather address the question of how to enhance the capabilities of those involved to change the constraining rules of the game to lead to outcomes other than remorseless tragedies.10

Ostrom’s work thus explored ways of organizing collective action that might ensure the sustainability of commonly held resources. And while Ostrom focused on natural resources, such as fisheries, the problems she described, and the potential solutions she explored, have some important issues in common with institutions of higher education and the nonprofit, community-developed, academy-owned software projects—like arXiv, like Samvera, like Humanities Commons—on which these institutions should be able to rely.

Many examples of free and open digital scholarly platforms and projects like these exist, all of which face a common problem: while there is often sufficient support available for building and implementing such systems, there aren’t funding programs designed to ensure that they can be maintained. As a result, the tools and platforms accrue technical debt that becomes increasingly difficult to manage, making the projects appear unsustainable and leaving them in danger of obsolescence. Some people argue that the best means of ensuring the sustainability of such projects is economic: simply eliminate the free-rider problem by enclosing the commons, requiring individuals or institutions to pay in order to access them. But this privatization is, in many cases, the exact problem that community-developed projects were developed to evade. It is incumbent on us to find the self-organization and self-governance models that can keep these projects open and thriving.

In July 2018 Brett Bobley, chief information officer for the National Endowment for the Humanities and director of the Office of Digital Humanities, tweeted a question about how to sustain critical scholarly infrastructure. Numerous discussions and threads resulted from that question (all worth reading), but one that particularly caught my attention stems from this reply by Hugh Cayless, senior digital humanities developer at Duke Collaboratory for Classics Computing (DC3):

Would entail (I think) institutions willing to take responsibility for critical scholarly infrastructure components, fund their maintenance, and give credit to the maintainers. Components die because all that drives them is passion and uncompensated (invisible) labor.11
I absolutely agree, especially when Cayless moves beyond the economic sphere into issues of labor and credit. However, individual institutions cannot manage such responsibilities on their own. Cross-institutional collaborations are required to keep open-source software projects sustainable, and those collaborations demand that the staff participating in them not only be credited and paid appropriately for their labor but also—most challengingly—be supported in dedicating some portion of their labor to the collective good, rather than strictly to local requirements.

College and university leaders must understand themselves to be part of a community of higher education institutions, and they need to act in solidarity with that community. This is why I argue that sustainability in open-source development has solidarity as a prerequisite: the interests of the group require commitment from its members to that group, at times over and above their individual interests. I’m thinking about how we foster that commitment: how, in fact, do we understand that commitment itself as a crucial form of social sustainability?

Getting our institutions to stop competing with one another and to start recognizing that they have more to gain from collaboration than they stand to lose in the rankings is no easy task. The privatization that has gradually overtaken higher education since the Reagan era has resulted in a fundamentally market-oriented, competition-based approach to everything a college or university does. This approach must be set aside. Making this argument is a huge part of what we’re trying to instantiate in Humanities Commons.

I’ve previously mentioned Humanities Commons, and its influence on my thinking, several times. Here’s a bit of background on the network, which was developed as a project of the office of scholarly communication at the Modern Language Association (MLA). The MLA is the largest scholarly society in the humanities, representing approximately 25,000 scholars across North America and around the world, members who teach and study a wide range of languages, literatures, and cultures. In 2013, when I was director of scholarly communication at the MLA, we launched a social network, with support from the Andrew W. Mellon Foundation, called MLA Commons. Our goal was to provide our members with a platform for communication and collaboration, both to extend year-round the kinds of conversations that take place at annual meetings and to provide a means for members to share their scholarly work with one another. Within about 30 seconds of launching the platform, however, we began to hear from our members about their desire to connect with
If we are to reclaim control of the work produced in and by our colleges and universities, we must do so as a sector, acting not just in solidarity with but in generosity toward the other institutions to which we are inevitably connected.

With further support from the Mellon Foundation, we undertook a planning process and developed a pilot project designed to connect multiple proprietary Commons “instances,” each serving the membership of a scholarly society. Humanities Commons went live in December 2016, linking MLA Commons with Commons spaces developed for the members of the Association for Jewish Studies, the Association for Slavic, East European, and Eurasian Studies, and the College Art Association. But in addition to working with these partners, we wanted to provide a space where any researchers or practitioners in the humanities could create an account and share their work, and so we decided to open the network’s hub to anyone who wanted to join—across disciplines, around the world, and regardless of institutional affiliation or organizational membership. All Humanities Commons members can take advantage of the network’s features. They can set up professional profiles, participate in group discussions, create websites, and deposit and share their work in the network’s open-access repository. This fusion of a social network with a library-quality repository (adhering to commonly accepted metadata standards and employing digital object identifiers) means not only that these materials can be found there, but also that materials are being put into the repository, and not just that these materials are being actively used, since there is a community with which they can be shared.

Fully opening the Humanities Commons hub to free participation by any interested scholar or practitioner has significantly driven the platform’s adoption and use: a little over two and a half years later, we have more than 17,500 members. But doing so has also created challenges for our sustainability. Partner organizations tend to see the value in paying to support the network’s services as a way to provide a benefit for their members. This is understandable, since they need to provide such benefits in order to keep their dues-paying members. But this model transforms Humanities Commons from a common-pool resource into a club good, one whose benefits are exclusive to those who pay. And we’re hearing that many of the organizations that might have paid for the network if it were an exclusive service see the openness of the hub as diminishing the network’s value to them, rather than recognizing that the network effects of a larger, more open community will ultimately serve their long-term interests.

As a result, we’ve been working to develop a model that will encourage organizations and institutions to invest in the network, to support it in an ongoing way, and to recognize not only that they belong to the network but also that the network belongs to them and that its future depends on them. Making that case requires not just a workable revenue model but, far more importantly, a compelling governance model, one that gives member organizations and institutions, as well as individual members, a voice in the network’s future and a stake in its outcomes. As Ostrom argues, a path to sustainability for a common-pool resource like Humanities Commons requires us to recognize that building the network’s community and enabling it to become self-governing is a precondition for its success.

The future of Humanities Commons, like the future of a host of other open-source software and community-supported infrastructure projects, requires its participants to act in the interest of the collective, even when those interests do not immediately appear to be local. This form of solidarity is where real sustainability for academy-owned infrastructure—and for the academy itself—lies. The road ahead is rough. I’m asking colleges and universities as institutions to undergo a fairly radical transformation, fully aligning their internal reward structures with the public mission they claim to espouse. And this is where the need for a paradigm shift—the need for politics—arises.

This is the conclusion reached by a study entitled “How Significant Are the Public Dimensions of Faculty Work in Review, Promotion, and Tenure Documents?” The answer? Not very. The study demonstrates the extent to which “institutions that want to live up to their public mission need to work toward systemic change in how faculty work is assessed and incentivized.” No doubt all of us could tell stories that support this conclusion, stories that illustrate the ways in which the kinds of collaborative work that might best support the college/university’s need for a more open, publicly oriented future goes un- or under-rewarded.

Here’s my story. Right around the time I began sketching the outline for my book Generous Thinking, I attended a day-long workshop on new models for open scholarly communication. The provost of a large state research university had been invited to give a keynote address. The provost described his campus’s efforts to embrace a renewed mission of public service, and he emphasized the
role that broad public access to the faculty’s work might play in transforming the environment in which the university operates today. The university’s singular purpose is the public good, he said, but he noted that those of us in higher education are often seen as being self-interested. He asked: can opening up our work to the world help change the public discourse about us? It was an inspiring talk, both rich in its analysis of how the university found its way into the economic and social problems it now faces and hopeful in its thinking about new possibilities for renewed public commitment.

Right up until the moment when the relationship between scholarly publishing and tenure and promotion was raised. And then it was as though someone had dimmed the lights: we heard about the importance of maintaining prestige within the faculty through assessment that ensures faculty members are publishing in the highest-ranked venues. Frustrated by that shift in tone, I asked the provost what the possibilities might be for a very important, highly visible research university—one that understands its primary mission to be service to the public good—to remove the tenure and promotion logjam in the transformation of scholarly communication by convening the entire academic campus, from the provost through the deans, chairs, and faculty, in a collective project of revising—really, reimagining—all of its personnel processes and the standards on which they rely in light of a primary emphasis on the public good. What would become possible if all of those policies worked to ensure that what was considered to be “excellence” in research and teaching had its basis in the university’s core service mission? The provost’s response was, basically, that any institution that took on such a project would immediately lose competitiveness within its institutional cohort.

To say that this response was disappointing to me would be an understatement, but it was honest, if nothing else. It clearly stated where the rubber meets the road for the entire academic campus, from the provost through the deans, chairs, and faculty, in a collective project of revising—really, reimagining—all of its personnel processes and the standards on which they rely in light of a primary emphasis on the public good. What would become possible if all of those policies worked to ensure that what was considered to be “excellence” in research and teaching had its basis in the university’s core service mission? The provost’s response was, basically, that any institution that took on such a project would immediately lose competitiveness within its institutional cohort.

The worst of it for me was that the provost was correct. As currently structured, the entire system of higher education is engineered—from individual institutions to accrediting agencies, funding bodies, and the higher education press—to promote a certain kind of competitiveness that relies on a certain kind of prestige. Any institution that seeks to transform the rules or the goals of the competition without dramatically altering its relationship to the system as a whole is likely to suffer. What Newfield has described as the mandate to “compete all the time” forecloses a whole range of opportunities for our institutions, preventing them from taking any other approach.13

The real threat to institutions of higher education today is not other institutions of higher education, and it is not their place in the rankings. Rather, the real threat is the creeping forces of privatization that continue to undermine our public mission. If we are to reclaim that mission, to reclaim control of the work produced in and by our colleges and universities, we must do so as a sector, acting not just in solidarity with but in generosity toward the other institutions to which we are inevitably connected and also toward the public that we all jointly serve. If we are going to develop community-supported infrastructure for sustainability, we must genuinely become, and act as, a community. None of this will be easy—but the alternatives, which have been building over the last several years, will be far worse.

Notes
This article was adapted from Kathleen Fitzpatrick, “Generous Thinking: Sustainability, Solidarity, and the Common Good,” opening plenary, CNI Spring 2019 Membership Meeting, St. Louis, MO, April 8, 2019.
1. Kathleen Fitzpatrick, Generous Thinking: A Radical Approach to Saving the University (Baltimore: Johns Hopkins University Press, 2019).

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Rethinking the Context of Edtech

By Tressie McMillan Cottom

Sociologists specialize in context. We like to describe things, and sometimes we like to predict things. We've done both in the area of education technology (“edtech”). The British sociologist Neil Selwyn first proposed the idea of a sociology of education and technology, and he has been focusing on this issue for at least twenty years. Yet in a more recent book chapter, Selwyn and his colleagues noted that most of the research and writing on education technology is somewhat limited in its scope and in its ambition.

I would put a finer point on that claim. Almost all of the academic research and writing about how we should use technology in our higher education institutions, about how technology is changing our institutions, and about how technology can and cannot transform learning opportunities for various groups of students has been limited in its scope and in its ambition. Some of those limitations exist for very good reasons. For example, data is very hard to come by. Researchers also are concerned with this thing called ethics. The commitment to ethical research delimits randomized trials and open data for fear of harming subjects or compromising their privacy. Additionally, analysis of what works and what does not work in education technology requires specialized skills, which are not always available.

Even with these limitations, I believe now is an ideal time for us to start to rethink the context of edtech. In the long arch of education technologies, we have moved from mail order as technology to televisions in classrooms as technology to the internet as technology. We have gone through bust-and-boom cycles: from “this will change everything we do” to “this changes nothing” to “this changes everything!” My hope is that as a result, we have calmed the flames of the moral panic about what edtech can and cannot do. We can now put that behind us and expand our scope and our ambition. The sociology of edtech can call us from our academic tracks and our learning centers—from our respective silos—and join us as a community of practice to think about the messy, multidimensional whole.
Edtech 1.0 was about looking at the shiny stuff. Edtech 2.0 is about discovering what we can do with that shiny stuff. Edtech 3.0 will be about determining what we should do with that shiny stuff.

The Current Context

Learning technologies do not exist in a vacuum. For one thing, education technology is often restricted by how much money is available at the time of purchase. Edtech is also defined by the person making the decision to purchase it. Plus, it is restructured and redefined first by the instructors who use it in their teaching and then by the students who use it in their learning. Many of these tools are implemented in ways that are dramatically different from what was originally intended in their design.

Martin Weller, a professor of educational technology at the Open University and someone who has been deeply involved in thinking and writing about edtech over the last two decades, talks about how we have a host of research on what might be called “edtech 2.0.” This research peels back the curtain on our thinking about things like platforms, learning management systems, clickers (so many clickers!), blockchains, badges, biometrics—and the list goes on. Hopefully we now know a little, or a lot, about the assumptions built into edtech 2.0 tools. These assumptions include, for example, assumptions about ability (an area that we don’t talk about nearly as much as I wish we did) and about language and about social norms related to privacy and surveillance. Regarding the last, should students own their data, and if so, what would that look like? What can and should we do with that data? Should we turn our students’ data over to external vendors? What implications would that have on students’ ability to control their own relationships in a digitally mediated society?

One way I like to conceptualize this edtech 2.0 work by Weller (and others) is that edtech 1.0 was about looking at the shiny stuff. Edtech 2.0 is about discovering what we can do with that shiny stuff. We can even look forward to edtech 3.0, which will be about determining what we should do with that shiny stuff. This leads to the question, in considerations of what we should be doing, who is the “we”? What resources, power, and legitimacy do “we” have to do what should be done? When we think about what we should do as opposed to what we can do, we get into questions about ethics, fairness, and justice and their intersection with learning technologies. And here I’m using the term learning technologies broadly, to include any tool, either analog or digital, intended to facilitate learning and development. If these tools are going to survive into the phase of what we should do with education technology, I believe they must be embedded in the everyday practice of the higher education institution.

Doing so is problematic, however, because learning technologies have emerged as bureaucratic units that are distinct from academic units. Yet academic units remain the central way that institutions of higher education are organized, if for no other reason than that these units are the primary way that students interact with the institution. For the majority of students in traditional not-for-profit higher education, the college is an academic...
It is their major, minor, track, and specialization; it is what will be printed on their degree; it’s their professors and their advisors. So our learning technologies cannot continue to live solely in our administrative units; our academic units are where we are doing some of the more transformative work of learning. The sociology of education is helpful here.

Over the past sixty years of the sociology of education, we have learned that teaching students how to do something is rather straightforward, but also very difficult. We call this skill development. We know how to do this. We fundamentally know what works. The harder part is not just developing a skill but developing what we might call social capital and cultural capital. It is teaching students the language of the community of people who use that skill—the social norms and the beliefs of the profession that students will join when they too use that skill. This is the transformative part of education. And this is the real challenge for edtech 3.0.

Here is the problem: the devil is always in the details. The typical college student in the United States is not attending an elite private institution. The typical college student is not eighteen or nineteen years old. The typical college student today is a woman and/or a person of color. In addition, students are increasingly coming from backgrounds in which they are living with the cumulative disadvantage of inequalities in K-12 education and inequalities in how they fund their education.

On the institution side, this typical college student is more likely to be taught by non-tenure-track faculty members than are less typical students (i.e., wealthier, white, enrolled in selective colleges). In addition, various institutions have varying levels of resources to serve their students. Edtech at a community college looks quite different from edtech at a state public university, which is very different from edtech at a well-funded state flagship, which can look even more dramatically different from edtech at a private school.

All of this influences the decisions we have to make about how education technology will be deployed in the modern college/university, in the classroom, and beyond. And this is where things get complicated—in the mess, in the nuance, and in the context. I believe we need to rethink the context of edtech. We need to marry the best of our academic work with the best of edtech. In other words, what would it look like if education technology were embedded in the everyday practice of academic disciplines?

**Digital Sociology @ VCU**

That question has been a guiding one for us at Virginia Commonwealth University (VCU) as we continue to develop a process to do precisely that with our online digital sociology program, which offers a two-year master’s of science degree in sociology with a concentration in digital sociology.

We had this wonderful idea in 2015. We decided we would sit down and rewrite the curriculum for the online program. I had just finished my book *Lower Ed,* and consequently I had one impetus: I wanted us to design a program that would take all of the failures I saw in the for-profit higher education sector and flip them on their head. This sector had been really good at using technologies...
It doesn’t matter whether or not a tool can do something; it matters whether or not students can make sense of what the tool is doing.
to transform enrollment but really bad at using them to transform learning. Our partner in this effort was the VCU Academic Learning Transformation (ALT) Lab.

Administratively, the point of this program was to increase access for students who were being poorly served by the existing higher education institutions. In a state like Virginia, that meant reaching out to rural students and to military and veteran students. By virtue of doing that, we were very likely to attract women of color and adult or nontraditional students. And this is exactly what our first three classes of students in the Digital Sociology @ VCU program looked like.

We quickly realized that our core curriculum had to be entirely redesigned: we could not successfully offer asynchronous learning for diverse students in a tech-heavy learning environment without a whole lot of massive work upfront. We sorted through every available learning management system and through all of the open-access tools. We butted up against the numerous administrative and state regulations that allow us and disallow us to use one thing as opposed to another. We fought with content branding and marketing about what the website should look like.

In this process, we found that our core curriculum had to be entirely redesigned: we could not not successfully offer asynchronous learning for diverse students in a tech-heavy learning environment without a whole lot of massive work upfront. We sorted through every available learning management system and through all of the open-access tools. We butted up against the numerous administrative and state regulations that allow us and disallow us to use one thing as opposed to another. We fought with content branding and marketing about what the website should look like.

In this process, we found that we couldn’t make any baseline assumptions about our students’ ability to access, use, or make sense of edtech tools in their existing context. Across the United States, 97 percent of us have access to broadband. That number drops to 64-65 percent in rural areas, to 60 percent in poorer minority urban and suburban communities, and to about 58-59 percent in tribal communities. So we couldn’t make assumptions about broadband access. In addition, as surveys are showing, an increasing majority of students are using mobile devices for their academic work. So we also couldn’t make assumptions about laptop compatibility, for example. We thus used a lot of Google Classrooms to set up some of our early tools because we thought the framework would work with how students were probably using the internet in other parts of their life.

We were only about half right. In our first two cohorts, we found that students might know how to access Google but know nothing about how to use search terms to make Google work for them. When we assumed that our students could access databases, we discovered that some were able to click on them but didn’t necessarily understand the context of how to use the databases in their coursework. We toyed around with learning management systems that were supposed to offer one-click solutions, but we ran into the same problems. This highlights one of our findings from the sociology of edtech: it doesn’t matter whether or not a tool can do something; it matters whether or not students can make sense of what the tool is doing.

Here we were with what we were calling the first-born digital sociology curriculum. We were exploring digital sociology not just in our content but through the transformation of the entire learning process. We were collaborating with our faculty colleagues to co-teach courses, we were sitting in on each other’s online courses, we were implementing whatever tool was available to deliver the curriculum, and we were using constant feedback testing with students to see what was working for them. But when
we tried to break apart the algorithms of the various tools they were using, we were stymied by something very basic: our students didn’t know how to skillfully use a search function. And these were the students we were trying to embed in our edtech environment.

To respond to our students in that context, we faculty members had to give up a lot of academic control over our individual courses. We had to collaborate. We couldn’t become tool experts like our colleagues in the ALT Lab, and they couldn’t become sociologists, so we had to figure out how we could partner in meaningful ways. While we were trying to figure out how to use learning technology as practice, our colleagues in the ALT Lab were being asked to create, deliver, and measure educational technologies in order to help us build new tools, modify existing ones, and beta-test everything.

Our cooperation on the front end looked straightforward. A faculty member would sit down with a colleague in the ALT Lab for one or two sessions, come up with a gee-whiz online course module, and then deploy it. That was not the reality, however. To develop a meaningful online course, you have to know the content really well. And to use edtech tools in service to the content, you have to understand the tools really well. The academic faculty had power over how the courses were designed but didn’t have control of the tools; meanwhile the people who had control of the tools had no power over how the courses were designed. We had to find a way to work across these disciplinary silos, and we’re still working this out.

Another challenge that arose very early on in the process involved the *should* questions. Yes, I can record all of the keystrokes that my students take, but should I? Yes, we can use photos in our online forums, but should we? Yes, I can require my students to use an open-access platform that will mine their data and then market to them, but should I? Yes, we can force students to use a plagiarism software tool, but should we?

These are questions to answer and challenges to address if we’re going to make our edtech learning environments more just and if edtech 3.0 truly is about what we should do and how we should do it. Rachel Baker and her colleagues at the Stanford University Center for Education Policy Analysis (CEPA) are working on how we can study and understand online learning and the social and cultural context. According to their research, instructors are 94 percent more likely to respond to a discussion forum post by a white male than to one by any other student in the online learning environment.

Edtech tools that are supposed to increase access comes with the same sort of cumulative problems of advantage and disadvantage that we find in our face-to-face realities. The difference is that we have not thought as critically about how we’re supposed to use these tools to address and remediate those problems online. In fact, until recently we haven’t even had a good language for saying that we should be thinking about these things in our edtech spaces.

I believe that embedding edtech in academic disciplines can help. In working with our ALT Lab colleagues to build our digital sociology program, we realized that the academic discipline gave us a systematic way to think about whether or not we were reproducing offline realities in our online learning spaces. So we conducted audit studies of our courses. We applied mixed-method survey data to our online learning environments. But the sociology discipline does not have this market cornered. By embedding edtech in the humanities, for example, faculty could think about the historical context of where that technology comes from. Some of my colleagues in black studies and in gender studies look at whether or not these tools are embedded with logics about race and racism or gender and sexism. All of these aspects bring a necessary dimension to the way we think about edtech 3.0.

### Moving Forward

If we know that we have reached the limits of what education technology can do (edtech 2.0), we now need to think about what education technology should do (edtech 3.0). I strongly believe we should be grounding edtech in the core of the disciplinary conversation, rather than leaving it at the periphery.
At VCU, this meant that we couldn’t create an online digital sociology degree without also revamping the sociology curriculum for all of our students. In reimagining how online learning would happen, we also rewrote how we were going to teach our face-to-face courses. As a result, our students now benefit from sharing courses, research projects, and databases and collaborating in the same way that they see faculty collaborating online and in face-to-face courses. We also had to decide, very early on, that we were committed to offering a degree that not only provided skill value but also transformed our students’ social capital and cultural capital. We are still learning at VCU, but we are confident that a sociology of edtech, this ethos of learning rather than prescription, is very healthy for our curriculum development.

The sociology of edtech has encouraged us to emerge from our areas of specialization and work together as a community of practice to reconsider the context of edtech. We must be sure that we do not confuse the technology tools themselves with the purpose of our work. Edtech is not a set of tools; rather, it is a set of practices that further a greater good. Our educational mission is not just to keep students enrolled or even to graduate students. Our larger mutual goal should be to use edtech to address inequalities in order to produce the most equitable educational processes that will enable our students to leave our institutions with better economic, social, and cultural opportunities than they had when they arrived. That, to me, is the potential of education technology.

Notes
3. See Martin Weller, The Ed Techie (blog), and Martin Weller, “Twenty Years of Edtech,” EDUCAUSE Review 53, no. 4 (July/August 2018).
4. See also, for example, the work of Stephen T. Kerr, Audrey Watters, George Siemens, and David Weinberger.

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Artificial Intelligence in Higher Education: Applications, Promise and Perils, and Ethical Questions

By Elana Zeide
What is artificial intelligence? In any discussion of artificial intelligence (AI), this is almost always the first question. The subject is highly debated, and I won’t go into the deep technical issues here. But I’m also starting with this question because the numerous myths and misconceptions about what artificial intelligence is, and how it works, make considering its use seem overly complex.

When people think about artificial intelligence, what often comes to mind is The Terminator movies. But today we are far from machines that have the ability to perform the myriad of tasks even babies shift between with ease—even though how far away is a matter of considerable debate. Today’s artificial intelligence isn’t general, but narrow. It is task-specific. Consider the computer program that infamously beat the world’s champion in the Chinese game Go. It would be completely befuddled if someone added an extra row to the playing board. Changing a single pixel can throw off image-recognition systems.

Broadly, artificial intelligence is the attempt to create machines that can do things previously possible only through human cognition. Computer scientists have tried many different mechanisms over the years. In the last wave of AI enthusiasm, technologists tried emulate human knowledge by programming extensive rules into computers, a technique called expert systems. Today’s artificial intelligence is based on machine learning. It is about finding patterns in seas of data—correlations that would not be immediately intuitive or comprehensible to humans—and then using those patterns to make decisions. With “predictive analytics,” data scientists use past patterns to guess what is likely to happen, or how an individual will act, in the future.

All of us have been interacting with this type of artificial intelligence for years. Machine learning has been used to create GPS systems, to make translation and voice recognition much more precise, to produce visual digital tools that have facial recognition or filters that create crazy effects on Snapchat or Instagram. Amazon uses artificial intelligence to recommend books, Spotify uses machine learning to recommend songs, and schools use the same techniques to shape students’ academic trajectories.

Fortunately—or not, depending on one’s point of view—we are not at the point where humanoid robot teachers stand at the front of class. The use of artificial intelligence in education today is not embodied, as the roboticists call it. It may have physical components, like Internet of things (IoT) visual or audio sensors that can collect sensory data. Primarily, however, educational artificial intelligence is housed in two-dimensional software-processing systems. This is perhaps a little less exciting, but it is infinitely more manageable than the issues that arise with 3-D robots.

In January 2019, the Wall Street Journal published an article with a very provocative title: “Colleges Mine Data on Their Applicants.” The article discussed how some colleges and universities are using machine learning to infer prospective students’ level of interest in attending their institution. Complex analytic systems calculate individuals’ “demonstrated interest” by tracking their interactions with institutional websites, social media posts, and emails. For example, the schools monitor how quickly recipients open emails and whether they click on included links. Seton Hall University utilizes only about 80 variables. A large software company, in contrast, offers schools dashboards that “summarize thousands of data points on each student.” Colleges and universities use these “enrollment analytics” in determining which students to reach out to, what aspects of campus life they should emphasize, and assessing admissions applications.

**AI Applications**

Figure 1 shows a summary of the different kinds of applications that currently exist for artificial intelligence in higher education. First, as I’ve discussed above, is institutional use. Schools, particularly in higher education, increasingly rely on algorithms for marketing to prospective students, estimating class size, planning curricula, and allocating resources such as financial aid and facilities.

This leads to another AI application, student support, which is a growing use in higher education institutions. Schools utilize machine learning in student guidance. Some applications help students automatically schedule their course load. Others recommend courses, majors, and career paths—as is traditionally done by guidance counselors or career services offices. These tools make recommendations based on how students with similar data profiles performed in the past. For example, for students who are struggling with chemistry, the tools may steer them away from a pre-med major, or they...
Today’s artificial intelligence is based on finding patterns in seas of data—correlations that would not be immediately intuitive or comprehensible to humans—and then using those patterns to make decisions.
The promise of AI applications lies partly in their efficiency and partly in their efficacy. AI systems can capture a much wider array of data, at more granularity, than can humans. And these systems can do so in real time.

may suggest data visualization to a visual artist. Another area for AI use in student support is just-in-time financial aid. Higher education institutions can use data about students to give them microloans or advances at the last minute if they need the money to, for example, get to the end of the semester and not drop out. Finally, one of the most prominent ways that predictive analytics is being used in student support is for early warning systems, analyzing a wide array of data—academic, nonacademic, operational—to identify students who are at risk of failing or dropping out or having mental health issues. This particular use shows some of the real advantages of artificial intelligence—big data can give educators more holistic insight into students’ status. Traditionally, an institution might use a couple of blunt factors—for example, GPA or attendance—to assess whether a student is at risk. AI software systems can use much more granular patterns of information and student behavior for real-time, up-to-the-minute assessment of student risk. Some even incorporate information such as when a student stops going to the cafeteria for lunch. They can include data on whether students visit the library or a gym and when they use school services. Yet while these systems may help streamline success, they also raise important concerns about student privacy and autonomy, as I discuss below.

Lastly, colleges and universities can apply artificial intelligence in instruction. This involves creating systems that respond to individual users’ pace and progress. Educational software assesses students’ progress and recommends, or automatically delivers, specific parts of a course for students to review or additional resources to consult. There are often called “personalized learning” platforms.
I put this phrase in quotation marks because it has been sucked into the hype machine, with minimal consensus about what personalized learning actually means. Here I’m using the phrase to talk about the different ways that instructional platforms, typically those used in a flipped or online or blended environment, can automatically help users tailor different pathways or provide them with feedback according to the particular error they make. Learning science researchers can put this information to long-term use by observing what pedagogical approaches, curricula, or interventions work best for which types of students.

**Promise and Perils**

The promise of AI applications lies partly in their efficiency and partly in their efficacy. AI systems can capture a much wider array of data, at more granularity, than can humans. And these systems can do so in real time. They can also analyze many, many students—whether those students are in a classroom or in a student body or in a pool of applicants. In addition, AI systems offer excellent observations and inferences very quickly and at minimal cost. These efficiencies will hopefully lead to increased efficacy—to more effective teaching, learning, institutional decisions, and guidance. So this is one promise of AI: that it will show educators things they can’t assess or even envision given the limitations of human cognition and the difficulty of dealing with many different variables and a wide array of students.

Given these possible benefits, the use of artificial intelligence is also being framed as a potential boon to equality. With the improved efficacy of systems that may or may not require as much assistance from humans or necessitate that students be in the same geographical location, more students will gain access to better-quality educational opportunities and will perhaps be able to network with peers in a way that will close some of the achievement gaps that continue to exist in education. Lastly is the promise of a more macrolevel use of artificial intelligence in higher education to make gains in pedagogy, to see what is most effective for a particular student and for learning in general.

The use of artificial intelligence in higher education also involves perils, of course. One is the peril of adverse outcomes. Despite the intention of the people who develop and use these systems, there will be unintended consequences that are negative or that can even backfire. To avoid these adverse outcomes, you should take into account several different factors. One of the first to consider is the data that these tools draw upon. That data can vary in quality. It may be old and outdated. Or it may be focused on and drawn from a subset of the population that may not align with the students being targeted. For example, AI learning systems that have been trained on students in a particular kind of college or university in California may not have the same outcomes or reflect the same accuracy for students in another part of the country. Or an AI system that was based on Generation X students may not have the same efficacy for native digital learners.

Another data aspect concerns comprehensiveness. Does the data include information about a variety of students? There has been much discussion about this recently in terms of facial recognition. Scholars looking at the use of facial recognition by companies such as Google, IBM, Microsoft, and Face++ have shown that in many cases, these tools have been developed using proprietary data or internal data based on employees. The tools are much more accurate for light-skinned men than light-skinned women or darker-skinned men. In one study, the facial recognition tools had nearly 100 percent accuracy for light-skinned men but only 65 percent accuracy for dark-skinned women. Joy Buolamwini, a co-researcher of this study, created her own, much more accurate tool simply by drawing from a broader array of complexion in the training data she used.3

Next to consider are the models that are created using this data. This again raises the issue of accuracy. Models are based on correlation; they are not reflective of causation. And as the Spurious Correlations website hilariously demonstrates, there are some wild correlations out there. Some correlations do seem to make intuitive sense, for example that people who buy furniture protectors are better credit risks, perhaps because they are more cautious. But the point of AI tools and models is to show less intuitive, more attenuated correlations and patterns. Separating which correlations and patterns are accurate and which are simply noise can be quite difficult.

Algorithmic bias plays a role here. This is a real concern because it is something that can occur in the absence of discriminatory intent and even despite efforts to not have different impacts for different groups. Excluding a problematic or protected class of information from algorithms is not a good solution because there are so many proxies for things like race and gender in our society that it is almost impossible to remove patterns that will break down along these lines. For example, zip code often indicates race or ethnicity. Also, because artificial intelligence draws from existing patterns, it reflects the unequal access of some of today’s current systems. A recent example is Amazon’s hiring algorithm, which was criticized for being sexist.4 There is no evidence that Amazon had any intention of being discriminatory. Amazon used artificial intelligence to detect those characteristics that were most indicative of a successful employee, incorporated those characteristics into its algorithm, and then applied the algorithm to applicants. However, many of Amazon’s successful employees, currently
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and in the past, were men. So even without any explicit programming, simply the fact that more men had been successful created a model skewed toward replicating those results. An additional, often overlooked factor in adverse outcomes is output. Developers’ decisions shape how the insights that AI systems offer are instructed and interpreted. Some provide detailed information on various elements of students’ learning or behavior that instructors and administrators can act on. Other observations are not as useful in informing interventions. For example, one predictive analytics tool estimated that 80 percent of the students in an organic chemistry class would not complete the semester. This was not news to the professors, who still wondered what to do. So it is important to understand in advance what you want to do with the information these tools provide.

A final factor to consider in avoiding the peril of adverse outcomes is implementation, which is also not always covered in the AI debates in the news or among computer scientists. To use these systems responsibly, teachers and staff must understand not only their benefits but also their limitations. At the same time, schools need to create very clear protocols for what employees should do when algorithmic evaluations or recommendations do not align with their professional judgment. They must have clear criteria about when it is appropriate to follow or override computer insights to prevent unfair inconsistencies. Consider the use of predictive analytics to support decisions about when caseworkers should investigate child welfare complaints. On the one hand, caseworkers may understand the complex and highly contextualized facts better than the machine. On the other, they may override the system in ways that may reflect implicit bias or have disparate outcomes. The people using these systems must know enough to trust—or question—the algorithmic output. Otherwise, they will simply dismiss the tools out of hand, especially if they are worried that machines may replace them. Good outcomes depend on an inclusive and holistic conversation about where artificial intelligence fits into the larger institutional mission.

A second peril in the use of artificial intelligence in higher education consists of the various legal considerations, mostly involving different bodies of privacy and data-protection law. Federal student-privacy legislation is focused on ensuring that institutions (1) get consent to disclose personally identifiable information and (2) give students the ability to access their information and challenge what they think is incorrect. The first is not much of an issue if institutions are not sharing the information with outside parties or if they are sharing through the Family Educational Rights and Privacy Act (FERPA), which means an institution does not have to get explicit consent from students. The second requirement—providing students with access to the information that is being used about them—is going to be an increasingly interesting issue. I believe that as the decisions being made by artificial intelligence become much more significant and as students become more aware of what is happening, colleges and universities will be pressured to show students this information. People are starting to want to know how algorithmic and AI decisions are impacting their lives.

My short advice about legal considerations? Talk to your lawyers. The circumstances vary considerably from institution to institution.

Ethical Questions
Ethical questions revolve around consequences in terms of different groups and subgroups, educational values, and how AI systems might alter those values.

The Black Box
Unpacking what is occurring within AI systems is very difficult because they are dealing with so many variables at such a complex level. The whole point is to have computers do things that are not possible for human cognition. So trying to break that down ends up creating very crude explanations of what is happening and why.

Invisible Infrastructure
By choosing the variables to be fed into admission systems or financial aid systems or student information systems, these AI tools are creating rules about what matters in higher education. This leads to an invisible infrastructure. None of this is explicitly considered by the people implementing the infrastructure. The best example is when learning software specifies particular learning outcomes—choices that are at the core of educational and institutional policy. But educators often overlook that fact when they adopt technology, not understanding that doing so is in some ways the equivalent of imposing an entirely different rubric, instead of standards, in the academic attainment.

Authority Shifts
The entity doing the data collection and visualization is often a private company. That company is thus in charge of many decisions that will have an important impact and that will alter core values of systems in a way that is, again, not always visible. These private companies may be less directly accountable to stakeholders of the educational institutions—in particular, stakeholders such as students. It is important to consider this authority shift, and the shift in incentives, when using these technologies.

Narrowly Defined Goals
Applications that are based on data often promote narrowly defined goals. That is because in order to work, these systems must literally codify the results that are deemed optimal. This leaves less flexibility than is currently the case with human interactions in classrooms and on campuses. An example is acquiring an education broadly versus learning more narrowly. Optimizing learning outcomes—for example, skills acquisitions, better grades, or increased retention—may crowd out more abstract educational goals promoting citizens capable of self-governance or nurturing creativity. The latter are aspects that one could technically, perhaps, represent in data, but doing so involves crude proxies at best. As a result, they may not be measured or prioritized.

Data-Dependent Assessment
Data-dependent assessment raises similar issues. Tools that collect information, particularly based on online interactions, don’t always grasp the nuances that teachers might see in person. Consider the case where a student answers a question incorrectly. A machine will record a wrong answer. An instructor, however, may discount the error if she notices, for example, that the student clearly has a bad cold.

Divergent Interests
A divergent interest is sometimes between technology developers and institutions and sometimes between institutions and students. In the first instance, technology developers have an incentive to develop systems that use more and more data to get results that the developers can claim are more and more accurate. This allows them to show that their systems are making a difference. That may sometimes result in a rush to market or an emphasis on scale—which may not mean
that the best-quality platforms are being used or that their efficacy is being assessed in any meaningful terms. This is certainly not true for all technology developers, but it is important to note.

More significant, and less obvious, is the divergent interest between institutions and students. The use of predictive analytics and early warning systems is often touted as a way to promote student retention by drawing attention to struggling or at-risk students. That is fine if the college or university is then going to try to ameliorate or prevent that outcome. But doing so is not always in the institution’s administrative interest. In a famous example from a couple years ago, the president of Mount St. Mary’s University, in Maryland, administered a predictive analytics test to see which students were most at risk of failing. The idea was to encourage them to drop out before the university was required to report its enrollment numbers to the federal government, thereby creating better retention numbers and improving its rankings. According to the president, his plan promoted the institutional interests for better statistics so is not always in the institution’s administrative interest.

Elements to Consider and Questions to Ask

Several elements need to be considered to ensure that the implementation of AI tools is optimal and equitable:

- **Procurement.** Pay close attention to the technologies and companies that will be most applicable to your particular student body in terms of the contractual obligations to provide data about your students. Make sure that if problems arise, you have contracted with a company that will be responsive to your problems.

- **Training.** Prepare those people who are going to implement and use these tools, and train them in the benefits and shortcomings of the tools.

- **Overnight.** Put in place a continuous process of examining whether the tools are working, whether they are more effective for particular groups of students, and whether they may be giving better numbers but not better outcomes. This is something that is difficult
to do but is very important, because these tools can get outdated quickly.

- **Policies and Principles.** Create institutional policies surrounding the implementation of tools that rely on analytics, and cultivate principles that translate those policies into operational steps and actions.

- **Participation.** Get students’ and faculty members’ input about their concerns and what they would like to see from these systems. This step is often overlooked because it is messy and can lead to some controversy, but it generally creates a better result in the long run.

Regarding policies and principles, some of the best I have seen were developed in 2015 by the University of California Educational Technology Leadership Committee. The committee listed six principles, elaborating on each: ownership; ethical use; transparency; freedom of expression; protection; and access control. In addition, the committee recommended learning data privacy practices that security providers can implement in the areas of ownership, usage right, opt-in, interoperable data, data without fees, transparency, service provider security, and campus security.

Finally, to be successful, anyone considering an AI implementation within higher education should ask six essential questions:

1. What functions does the data perform? You can’t just see a red, green, and yellow light about student success and take that at face value, at least not if you are the one implementing the systems and you want to do so responsibly.

2. What decisions don’t people see? These are decisions not just about the computer processing but also about the categorization and the visualization.

3. Who controls the content? Is it you, or is it the technology provider? How comfortable are you with that? How comfortable are your professors with that?

4. How do you check outcomes in terms of efficacy, in terms of distribution, and in terms of positive and negative outcomes?

5. What gets lost with datafication? I use this word to describe doing these things based on data as opposed to on interpersonal or bureaucratic systems.

6. What—and whose—interests do you prioritize?

There are no easy answers, but asking these questions will give you a template for considering the less obvious aspects of these systems.

Conclusion

My final message? Do not surrender to the robot overlords just yet. Keep in mind that for all the hype and buzz, these AI tools are just computer systems. They can go wrong. They are created by humans. Their values are shaped by companies and institutions. Their data is not neutral but is defined by the historical patterns. Be cautious and thoughtful about what you are doing with artificial intelligence, and remember: it’s not magic.

Notes


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Winning the Battle for Student Success

All higher education institutions are fighting a similar battle: how to drive better student engagement and connect campus communities in a way that helps students be more successful. At South Texas College (STC), administrators and faculty are fighting that battle in the midst of especially challenging conditions . . . and they’re winning.

STC is located in McAllen, Texas, 11 miles from the Mexico border. The city has a 7.9 percent unemployment rate, and roughly 30 percent of residents live in poverty—among the highest rates in the United States. Furthermore, more than 70 percent of students are the first in their families to attend college, and more than 95 percent of students are Hispanic—a significant number of whom do not speak English as their primary language. The challenges don’t end there. Across the border is Reynosa, a community saddled by drug-related crime, creating an environment that has become the norm for many students and residents alike.

Yet through a new alliance formed between STC and Universidad Tamaulipca, more students in Reynosa will have access to the faculty, programs, and resources offered by STC, giving them the chance to gain the education needed to work toward making economic changes and breaking the cycle of poverty and crime. STC President Shirley Reed noted of this partnership: “It’s important for the economic development of the region because we have quality programs that we can share with them, and they have outstanding faculty with unique expertise they can share with us. We can work together, we can benefit, and we can learn from each other.”

For most students attending the college, STC is a lifeline—a way toward a better situation and a brighter future. But because of language barriers and a student population in which many students are isolated and highly impoverished and rely on mobile phones as their primary technology access point, a foundational piece in receiving that education has been missing until recently, when the school adopted Pronto, a mobile-first and student-centric communication platform.

Ana Peña, director of distance learning, and Simon Rodriquez, distance learning media manager, have led STC’s effort to find tools that will enable students to comfortably and confidently connect with professors, classmates, and advisors in real time. Increasing students’ access and engagement is key to their success. One way Pronto has helped is through instant communication. Rene Zuniga, chair of the Education Department and associate professor of education at STC, noted: “Students ask a question, and I get it right away.”

The language barrier for students at STC can be a significant roadblock to their success. Zuniga further commented: “We think we’re sending a certain message, but our students are receiving a completely different message due to the language barriers that exist on campus.” Furthermore, when students send messages, “you can tell right away” if their primary language is not English. As a result of the shortcomings of available tools, students have resorted to either awkwardly toggling between different translation applications or merely trying their best to communicate.

Pronto’s automatic message-translation solution allows students to both send and receive messages in their native language through a mobile application. This feature is breaking down language barriers and connecting students and professors: thanks to these message-translation capabilities, more than 90 percent of STC professors using
Pronto have connected with at least one student with whom they previously were unable to connect.

Breaking down communication barriers carries many benefits. Connected students feel more confident—about what professors expect of them and about their ability to succeed. By building students’ confidence in the classroom, higher education institutions can tackle another problem: student enrollment and retention. Mario Reyna, dean of business, public safety, and technology at STC, stated: “Imagine a world where students can speak freely in whatever language they’re comfortable speaking! Can you imagine what that will do to student enrollment?”

The economic barrier for students who are working full-time and can’t afford a laptop or have limited access to a computer can also present a significant challenge to succeeding in college. Pronto CEO Zach Mangum commented: “At the core of Pronto is a firm belief in helping students through accessibility—not just the traditional accessibility standards which include screen readers and voice-over, but also linguistic accessibility and economic accessibility. Pronto allows students to communicate freely in their native language on some of the least expensive mobile devices on the market.”

STC represents a more literal version of a situation that most students face: frustration around not having a voice that can be heard and understood; and feelings of isolation from, and lack of access to, the people who can help. On college and university campuses worldwide, students are more connected—but also disconnected—than ever. Students walk around campus increasingly plugged-in, with their faces in their phones and cut off from the campus community around them. It’s obvious where students want to connect: on their mobile devices. “Sometimes people are more prone to answering a message than a call,” says Jessica Gonzalez, an instructional designer at STC. “With time-sensitive information that students need and want to know, instead of flooding their email, we send it out through Pronto.”

Unfortunately, too many colleges and universities have been slow to adopt mobile-first communication tools and instead rely on older mediums such as email—often ignored by many students—and on communication tools available inside of an institution’s learning management system. Whereas LMS providers offer phenomenal learning tools, few offer fully robust, engaging communication tools. In fact, many LMS providers offer integrations with dedicated synchronous communication platforms because these platforms deliver specific benefits that the LMS simply cannot.

To truly engage students—something every college and university is desperately trying to do—institutions must adopt platforms that students enjoy and want to use. At STC, faculty had tried a variety of communication channels (e.g., email, WhatsApp) to engage with students. Through Pronto’s LMS integration, everyone is connected on day one—students, classmates, teachers, advisors, tutors. Nicolas Alcantar, a student at STC, noted: “Before Pronto, Spanish-speaking students might only seek help from friends or classmates who speak Spanish. Now they can seek help from other students who may not speak Spanish.”

Since implementing Pronto in January 2019, STC is noting several remarkable changes on campus. “I have seen students who are very afraid of using their voice to communicate. I have heard students say that they don’t feel comfortable speaking. With Pronto, students are more comfortable participating in class because even if they don’t know how to say something in English, they use Pronto, and it will translate it for them,” said Marisol Chavez, technology specialist at STC.

When students feel more confident in sharing their ideas and in getting the help they need, right away, they will be more successful. And higher education institutions will win the battle.

Notes
6. Ibid.
7. Ibid.

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Designing IT Projects to Advance the Learning Organization

For The Ohio State University Libraries, every library initiative is an opportunity to advance as a learning organization. In spring 2016, the libraries undertook a strategic planning process that was designed to incite the kind of organizational thinking and behaviors that the final framework would eventually champion: agile and iterative work, inclusive participation, organizational learning, risk-taking and accountability, and shared leadership. Library leadership expected everyone to take responsibility for the creation and realization of shared goals and the ultimate success of the organization.

The Learning Organization
These kinds of organizational values and learning practices characterize what Peter Senge calls the “learning organization,” which is adept at creating new knowledge and integrating it into improved work practices. The five disciplines of the learning organization are personal mastery, mental models, shared values, team learning, and systems thinking, with the last being the one that connects them all. Systems thinking is crucial to understanding the interconnectedness of one’s individual work and learning with that of the rest of the organization.

Research has shown a relationship between transformational and transactional leadership practices and the successful development of a learning organization. Together, these leadership styles emphasize systems thinking, encouraging organizational exploration and learning (transformation) and the institutionalization of that learning (transaction). For an organization to develop and sustain a learning culture, Senge emphasizes the need for leadership throughout the organization, including executive leaders, local line leaders, and internal networkers who may not have any positional authority.

The Ohio State University Libraries
When I joined the executive leadership team of University Libraries in fall 2016, I inherited two imminent, highly anticipated “IT projects”: a website redesign and the development of a discovery platform. With our organizational learning goals in mind, I rebranded these initiatives as “library projects,” signaling to the organization that, as with the strategic planning process, the success of these initiatives would be an organization-wide responsibility. We then restructured these projects to build on the successes of our strategic planning, spurring organizational learning in six areas: communication, collaboration, decision-making, shared leadership, user-centeredness; and agile, iterative planning and operations.

To underscore the organization’s collective responsibility for project outcomes and reinforce user-centeredness as a key value, we appointed a website redesign project lead from our Teaching and Learning Department and established a discovery project team with wide representation from across University Libraries. Project sponsors coached project leads on relevant leadership skills such as systems thinking and influencing without positional authority. Sponsors reinforced ideas of collaborative responsibility and participatory decision-making by encouraging broad staff involvement in project-related events. These projects featured agile and iterative development, design driven by user experience, and incremental release of new content and features. This last practice proved particularly challenging to employees (including executive leadership): we had to adjust to the idea of an “unfinished” and ever-changing product being available for everyone to see, test, and improve upon.

These three projects—creating a strategic framework, new website, and discovery platform—have advanced our practice of shared leadership, participatory decision-making, active engagement, and cross-organizational work and communication.

Elsewhere
How are other library leaders leveraging IT projects for organizational change? I spoke with five colleagues:

- Salwa Ismail, Associate University Librarian for Digital Initiatives and Information Technology at the University of California at Berkeley, reflecting on her time as Head of Library Technologies at Georgetown University
- Rosalyn Metz, Director of Library Technology and Digital Strategies at Emory University Libraries
- Hannah Sommers, Associate University Librarian at George Washington University
- Evviva Weinraub, Vice Provost for University Libraries at the University at Buffalo, reflecting on her time as Associate University Librarian for Collection Services and Technologies at Northwestern University
- Carolyn Caizzi, Head of Library, Repository and Digital Curation at Northwestern University

These leaders described seven projects in all, including their organizational learning goals, how projects were...
designed to advance learning, and their results. They agreed that although organizational learning practices should be a part of everything we do, high-profile, strategically aligned projects that encourage cross-functional engagement provide very visible opportunities to model the practices and behaviors that define a learning organization. IT and technical services projects, in particular, emphasize systems thinking by exposing organizational interconnections, dependencies, and the hard work of developing and maintaining infrastructures that might otherwise be unappreciated.

Learning goals for these projects included exposing hidden work; fostering organization-wide interest and investment; developing leadership skills (decision-making, influence), especially among those without positional authority; building trust in the expertise of others; and developing teamwork skills and cross-organizational interdependence that will endure beyond project end. Emphasizing systems thinking, Weinraub described wanting to “change the organization’s mindset from ‘IT as plumbing’ to IT as part of the life of the organization.” Sommers said a primary goal was to “imagine how we could work together as the most integrated organization we can be where we’re better able to back each other up in meaningful ways.” Ismail noted that cross-organizational projects create “environments where we learn from each other . . . creating a collaborative learning culture” that expands capacity and innovation.

To meet learning goals, interviewees developed cross-functional project teams to leverage expertise from across the organization while strategically engaging individuals and groups to extend collaboration beyond project end. Some offered training and coaching on specific skills they wanted to promote. George Washington provided coaching on agile development; Northwestern leveraged its years-long organizational focus on Senge’s five disciplines. Introducing new partnerships, skills, and work models within the scope of a project takes people out of their comfort zones, creating the real possibility of failure and thus shared responsibility and learning. Several interviewees discussed how they specifically selected project leaders they knew would advance their organizational learning agendas. Northwestern tapped staff from public services and George Washington engaged “internal networkers” to inspire buy-in across the organization. When possible, interviewees sequenced projects so that each subsequent project reinforced the learning outcomes of the last.

Because projects were constructed to leverage organizational knowledge and move decision-making to the right people and groups, teams developed trust and self-confidence in their individual and group expertise, as well as the humility to ask for help when needed. Teams also became more agile as collaboration developed, and they tended to iterate in their work as they learned. Purposefully exposing work in progress and revealing interconnections among disparate units’ responsibilities contributed to organizational investment. The individuals and units who participated in cross-functional teams became more proactive in reaching out across divisions to communicate and partner, even after project completion. Teams also internalized the lessons of shared leadership: members of George Washington’s team observed that leadership is a shared responsibility, everyone leads at different times, good leaders must constantly adapt, delegation is important, and leaders need support too.

Conclusion
Organizational change is hard. All of these projects encountered challenges, including fear of doing things in new ways. Some individuals struggled with working in a team, wouldn’t accept the expertise of others, or wanted to dictate solutions rather than collaboratively explore and define challenges and options. Some executive leaders may resist organizational learning practices, which require sharing vision-making and change responsibilities with staff throughout the organization. Yet learning organizations aren’t produced via top-down mandates; they require positional leaders to create the conditions for everyone in the organization to envision and create change and then support that growth as it happens. Positional leaders must understand their organization’s skills, gaps and culture, plan intentionally, have patience, and know when to get out of the way. Sommers put it succinctly: “My job was to be servant-leader and keep everyone fed.”

Learning begets learning. Metz noted: “The further along we move, the more buy-in I see from some members of the leadership team,” adding that although major projects “permeate the organization more deeply than smaller projects . . . smaller projects are where the principles identified in the larger projects are best reinforced.” The strategies described here provide models for designing projects to advance the learning organization. Our job as leaders is to create an environment where systems thinking and collaborative learning are the norm and where we, in community, develop and integrate new ways of working to achieve our shared values.

Notes

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New Life for Legacy Systems

Nearly every higher education institution depends on a core administrative student information system (SIS). Because the SIS sits at the center of so many of the day-to-day operations of managing students, courses, and grades, it becomes extremely important, expensive to operate, and hard to change. Every software system has limitations, of course, and system administrators soon find they need to either modify the way they work or modify the SIS. Because changing the way people work requires changing human behavior, changing the software is often simpler and more expedient.

Over time, these changes accumulate. Eventually, the resulting complicated and deeply embedded system can no longer support modern interfaces and new ways of doing business. At some point, campus leaders find themselves investing in the complex, risky, expensive, and politically fraught process of replacing their SIS in the hope of providing better service to students, improved access to data, and a more flexible technology environment for the future. The drumbeat to “replace the SIS” simply becomes too loud to ignore.

The California State University (CSU) operates a complex and expensive SIS environment, with a single software system currently servicing 22 campuses. While these campuses all use one product (PeopleSoft from Oracle), the code base for the system is modified first by the central system office and then by the various campuses, representing 15 years of accumulated changes in some cases. In this environment, there’s a natural appeal to the idea of tossing it all out and starting over. However, after a careful review, technology, administrative, and academic leaders decided in 2018 to postpone consideration of a new SIS system, partly because they felt that the current generation of Software-as-a-Service (SaaS) systems was not mature enough to meet institutional needs and that it is too soon to know whether the emerging generation of SaaS systems will fulfill the promise of better service and longer-lasting technology.

In the meantime, the CSU needed to address the demands for digital transformation and improved student outcomes. Was there a way to rethink the existing system while also preparing for the time when the old technology will no longer be tenable? We started by considering the ways in which the legacy SIS was inadequate or suboptimal. We identified a number of common frustrations and are embarking on strategies to address most of them. But perhaps most critical was the issue of integration. Integrating legacy systems, which are designed to work as monoliths, with modern SaaS systems in use in other campus areas can be difficult and costly. So we developed a way to significantly mitigate this problem. Although there are some special circumstances at the CSU, our overall strategy and tactics can be emulated elsewhere, including at many smaller institutions. In fact, if these strategies can work at the CSU, they can work almost anywhere else.

Integration refers to the connections between the SIS and other campus systems, including learning management systems, human resource systems, library services, parking and dining systems, and system directories such as Microsoft Active Directory. Traditionally, these integrations have been built one of two ways—through the export and import of “flat files,” consisting of lines of data separated by a delimiter such as a comma, or through the modification of the SIS code to communicate directly with the outside system.

The flat file, or “batch,” approach to integration is relatively easy to implement, although over time, managing these files can incur significant overhead and add new security and reliability risks. In addition, feeds typically operate on a daily schedule, meaning that a change in one system won’t reach a downstream system until the next day, resulting in poor student service. For example,
success in reducing interface costs for institutions, and for just in the United States but internationally. The payoff for a standard API for accessing higher education systems, not the development of initiatives, many including SIS functionality. colleges and universities around the world with API initiated APIs. A list maintained by Kin Lane identifies nearly 50 example. Young University has made notable strides in the area, for functions of the SIS into these RESTful APIs. Brigham software systems that can translate the data and business without requiring flat files or code modification. GET and PUT messages, two systems can communicate management system and receive a message “On Loan,” a GET Library-Book-Status (ID) message to the library lar identifier is currently checked out, a user might send an example, to find out whether a library book with a particu interaction consisting mostly of GETs and PUTs. For called RESTful, provides a simple model of application set of interfaces called an Application Programming Interface (API). The most commonly used approach to APIs, called RESTful, provides a simple model of application interaction consisting mostly of GETs and PUTs. For example, to find out whether a library book with a particular identifier is currently checked out, a user might send a GET Library-Book-Status (ID) message to the library management system and receive a message “On Loan,” indicating that the book is checked out. By composing GET and PUT messages, two systems can communicate without requiring flat files or code modification.

What if we could do the same with the legacy SIS? Some colleges and universities have done so, implementing software systems that can translate the data and business functions of the SIS into these RESTful APIs. Brigham Young University has made notable strides in the area, for example. And a number of other institutions have also created APIs. A list maintained by Kin Lane identifies nearly 50 colleges and universities around the world with API initiatives, many including SIS functionality. Still, a standard API model would simplify integration with third-party software. IMS Global Learning Consortium has initiated the development of EDU-API, which is intended to provide a standard API for accessing higher education systems, not just in the United States but internationally. The payoff for success in reducing interface costs for institutions, and for vendors, would be significant.

There are two other advantages of an API-based integration strategy. First, implementing integrations via API can be accomplished much more quickly than traditional development. Not only are well-designed APIs simple and easy to use, they also isolate the add-on development from the SIS, reducing the risk that an integration will cause a performance problem or will damage the integrity of the SIS. Second, API-based programs can give veteran software developers the opportunity to work with modern tools, and by eliminating the large amounts of specific knowledge needed to work in an SIS, they multiply the number of individuals who can develop campus software. This has the advantage of making the IT organization less of a bottleneck and encouraging a wide range of innovation in applications and interfaces.

Creating a comprehensive SIS API supports not only integration in general but also the development of an improved student, faculty, and staff user experience. Arguably, access to the SIS via an API is more flexible and “future proof” than choosing a new SIS, which will have an embedded model of user interaction that may or may not be consistent with the overall user experience a campus is creating for its constituents. Interaction requires two-way communication with the SIS, so APIs need to include both GET and PUT capability, and they need to be real-time or near real-time.

The CSU is in the early phase of developing an API that will simplify integration with our PeopleSoft system across 23 campuses by 2021, eventually extending beyond IT departments to include staff, faculty, and student employees who want to develop innovative interfaces. By developing an SIS API, we will greatly simplify SIS interaction and abstract it from the underlying software; eventually, when most or all interfaces are via API, we will be able to change the underlying SIS while minimizing the impact on these integrations, thus reducing the cost of a future SIS replacement.

For many higher education institutions, replacing an SIS may become inevitable in the long run. In the meantime, using strategies to extend its life while eliminating many of its weaknesses can represent good stewardship of institutional resources.
I remember taking a leadership class in which the instructor told us that we should have a firm grasp on what our ethics are. She said that we would be faced with an ethical decision at some point and then would not be the time to have to decide what was ethical. I agree wholeheartedly. I also think the same preparation is called for around a leadership philosophy.

Early in my career as a higher education chief information officer (CIO), I would tell people in the IT department what I expected of them, but I did so often as a stream-of-consciousness spread over weeks, months, or years. The information was passed out whenever an event occurred that brought one of my pet peeves into sharp focus. At some point, someone who worked for me told me I should write them all down, and then he did so for me. At this point, “Wayne’s 7&4” were codified.

These days I share my leadership philosophy—my “7&4”—with my direct reports during my first meeting with them. I point back to these leadership principles as the people in my department and I get to know one another. In this way, there are no surprises about the things that are important to me. My “7&4” consists of 7 thoughts about IT leadership and 4 thoughts about professional success in general. This leadership philosophy is something that has grown and changed over time.

These 11 points are mine: they come from a background and experiences that are unique to me. I encourage you to put some thought into the things that are important to you—your style and your view of the role of the IT department and the technology leader. Once you have your philosophy, write it down and share it with the people you work with. Then live that leadership philosophy through your actions. The people you lead will watch what you do after hearing what you say.

Wayne’s “7&4”

7 Thoughts about IT

1. Remember that customer service is at the top of our list.
   - Be responsive.
   - Don’t bounce a support call; personally hand it off to the person who can assist.
   - People are frustrated when they call. Don’t frustrate them further by giving them the runaround.
   - Remember: we are here to help.

2. Perform executive-level service for executive staff.
   - Don’t view this as “kissing up.”
   - I have to ask people for money, support, resources, etc. This is much easier to do if they perceive the IT organization as being customer-focused and valuable to the organization.

   I joined an IT organization that had told the college president that he could not have a certain kind of phone. This same group had also told the provost that she could not have a printer on her desk. This lack of service was performed in the name of IT “standards,” but all it did was alienate the IT organization from the leadership of the college. This lack of customer service was part of the reason the college leadership decided to do a CIO search and hired me.

3. Communicate, communicate, communicate.
   - Typically, IT professionals don’t do this well.
   - Lack of communication is the number one—bar none—complaint about IT departments and their leaders.
   - Communication is easy to do and makes customers feel so much better about potential solutions to their problems.

4. Create an invisible foundation of technology that is “bullet proof” and always works. Functional improvements and innovation should be layered on this foundation.

   I’ve joined IT departments that were engaged in producing some whiz-bang technology while core systems were failing regularly. We have to get the core systems right before, or at the same time that, we move on to implementing the latest and greatest technology.

5. Establish healthy technology governance.
   - Functional system leadership, training, and support should be led by the functional area.
   - Partner with functional area leaders as they propose a fix or system.
   - Keep the IT organization aligned with the institutional business.
   - Support the mission of the institution. We exist for no other reason.

I could fill another article with examples of IT department leaders who took on the role of functional system leadership
and allowed the functional area leaders to abdicate their role in our partnership. I recently sat in an academic leaders meeting in which an advising tool was demonstrated by two IT leaders. The tool was not designed well and required a manual to use. The feedback from the academic leadership was fairly harsh—and justifiably so. The tool had been developed with academic advising input and feedback, but when the criticism started flying during the demonstration, the academic partners on the project were very quiet. As Tacitus said, “Success has many fathers, but failure is an orphan.”

6. Do good things for a reason.
   - There are lots of “shiny objects” out there. Do these things contribute to the mission of the organization as viewed by the functional areas?
   - Is there a functional need for the solution? Don’t be a solution looking for a problem.
   - Our mission is to educate students who can then improve their lives. Our mission is not to implement and support technology.

   It is very easy for IT professionals to lose sight of the bigger mission. I find that it helps to get a reminder that the primary mission of a college or university is educating students who will graduate and improve their lives and society.

7. Take care of your people; you get little done by yourself.
   As a technology executive, I attend a lot of meetings, but I don’t perform the real work in the IT department. The people who do the work are at the front line, and if they are not taken care of, the real work won’t get done.

4 Thoughts about Professional Success

1. Do a fantastic job.
   Being a member of a professional organization is wonderful. Attending professional development courses is great. Serving on committees is helpful. However, if you don’t do a fantastic job first, none of these extracurricular activities will mean anything.

2. Do well what typically isn’t done well.
   Stand out! Every profession has stereotypes, and there are several for IT professionals: not being able to communicate; being introverted; not being social. Pick out some of these stereotypes, and work on them. Be the IT leader who is outstanding interpersonally or who delivers polished presentations.

3. Professionally support the IT organization in other departments.
   Volunteer to serve on committees outside of the IT organization (after you are already doing a fantastic job).

4. Support the organization in other ways (civic and social).
   For example, attend the annual institutional fund-raising event or show up for the after-hours meet-and-greet for the new provost.

In Summary

Leadership is one of the most important parts of an IT executive job. Take some time to give it some thought and decide what is important to you as an IT leader. After you do, write down your leadership philosophy and share it with those you lead.

Wayne Brown (wbtbrown@hotmail.com) is the Vice President for Information Technology Emeritus at Excelsior College in Albany, New York. He founded the Center for Higher Education Chief Information Officer Studies (CHECS), a nonprofit organization that focused on contributing to the education and development of higher education CIOs.

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Back-to-School: Student Success

Two of the EDUCAUSE 2019 Top 10 IT Issues focus on students and their success:

#2 Student Success
Serving as a trusted partner with other campus units to drive and achieve student success initiatives

#4 Student-Centered Institution
Understanding and advancing technology’s role in optimizing the student experience (from applicants to alumni)

Q&A Which online student success tools are most helpful to students?
Students who have used the following tools ranked them as “at least moderately useful.”

96% Degree planning or mapping tools that identify courses needed to complete a degree
96% Degree audit tools that show the degree requirements completed
96% Online self-service tools for conducting student-related business
96% Systems for tracking credits, credit transfers, and dual enrollment
90% Suggestions for new or different academic resources
90% Referral systems to social or community resources
89% Guidance about courses students might consider taking in the future
89% Early-alert systems designed to catch potential academic trouble as soon as possible
84% Suggestions for how to improve performance in a course

Source: EDUCAUSE Almanac for Undergraduate Student and Technology Survey, 2018
Who is moving ahead in their student success efforts?
Compared with all other institutions, two-year and associate’s institutions report significantly higher levels of maturity in their student success technologies.

Mean maturity score for “Student Success Technologies”
- for all institutions
- at two-year and associate’s institutions

One area that stands out as particularly more developed is “leadership support,” comprising the following:
- Senior leaders’ commitment
- Student success initiative alignment
- Student success technology alignment
- Adequate funding for student success efforts and technology

Mean score for “Leadership Support” in this capabilities area
- for all institutions
- at two-year and associate’s institutions

Source: 2018 Core Data Service survey

Where should institutional leaders focus next in their student success efforts?
Institutions report that the following areas are “largely or fully achieved.”

- **82%** “Department Collaboration” in their student success work
- **77%** “Faculty Inclusion” in their student success work
- **56%** “Student Leader Inclusion” in their student success work

Institutions need to focus on increasing collaboration with student leaders in their student success work, to bring it more in line with collaboration efforts under way across other departments and populations at the institution.

Source: 2018 Core Data Service survey
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