INNOVATION, INFRASTRUCTURE & DIGITAL LEARNING

Casey Green
THE CAMPUS COMPUTING PROJECT
campuscomputing.net • @DigitalTweed

July 2017 Convening
ACAO Digital Fellows Program

Scottsdale, AZ • 17 July 2017

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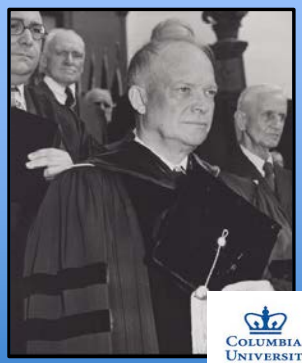
Homage to Dwight D. Eisenhower

Five Star General, War Hero, 34th president of the US. . . and university president.



"General, the faculty are the university!"

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Innovation, Infrastructure, and eLearning

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Teaching is a "High Touch" Profession

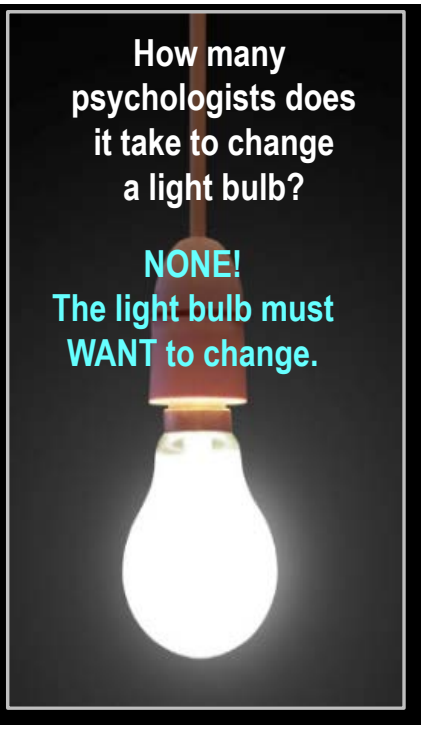
Spangenberg: *Aristotle's School*, 1880s

Learning is a Personal Experience

Technology is a Conversation About Change

How many psychologists does it take to change a light bulb?

NONE!
The light bulb must WANT to change.



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Wisdom from the Software Industry

The Innovator's Dilemma

God could create the world in seven days . . .

because there were no legacy systems

and there were no legacy users.

What are the legacy systems in education?

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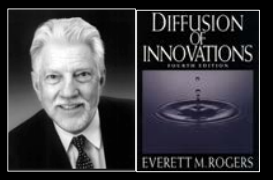
Technology is a Metaphor for Change

Technology is also a metaphor for risk.

Technology is a means of uncertainty reduction that is made possible by the cause-effect relationships upon which the technology is based . . . . A technological innovation creates a kind of uncertainty (about its expected consequences) in the minds of potential adopters, as well as representing an opportunity for reduced uncertainty in another sense (reduced by the information base of the technology). . . . Thus, the innovation-decision process is essentially an information-seeking and information-processing activity in which the individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation.



Everett M. Rogers

The Diffusion of Innovation
The Campus Computing Project

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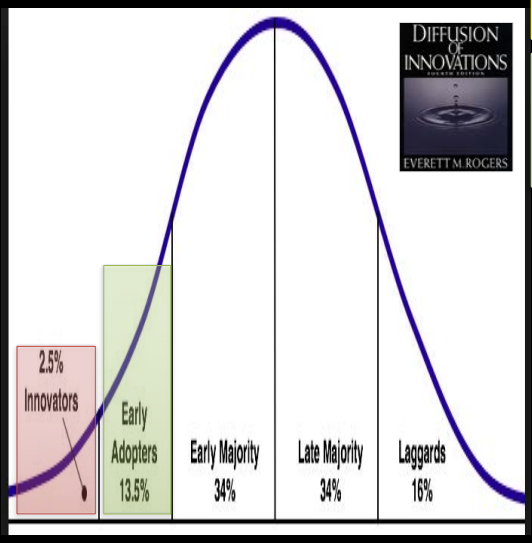
The Innovation Curve



- **INNOVATORS**: Venturesome; cosmopolitan; they can cope with uncertainty; not always influential.
- **EARLY ADOPTERS**: Greatest degree of opinion leadership; respected; serve as role models for others; help off-set uncertainty among others.
- **EARLY MAJORITY**: Deliberate choices; longer decision cycle; links to late majority.
- **LATE MAJORITY**: Traditional, cautious and skeptical; may adopt out of necessity. Innovation must be safe.
- **LAGGARDS**: No roles as opinion leaders; they reference the past not the future. Must be certain that innovation will not fail.

Source: Everett M. Rogers, *The Diffusion of Innovation*

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Technology is Disruptive

Issues & Impacts

- Organizational practice & process
- Individual behaviors and preferences
- *Visualization:* can I see me/us doing that?

Response

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

On Death and Dying
Elizabeth Kübler-Ross

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The Key Campus Tech Issues are No Longer about IT

- IT is the "easy part" of technology on campus
- **THE CHALLENGES:** People, planning, policy, programs, priorities, silos, egos, and IT entitlements

The Instructional Challenge
How do we make Digital Learning compelling and safe for the faculty?

- Document the evidence of impact
- Provide much-needed support, recognition, and reward for faculty
- Address rising demand in the midst of reduced financial resources
- Communicate about the effectiveness of and need for IT resources

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Visualization

Underlying Issues

Can I do this? Why should I do this?

Evidence of benefit?

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What Have We Learned Over Three Decades?

plus ça change
The more things change, the more things stay the same.

Technological Changes

- Hardware
- Software
- Internet
- Wireless
- Mobile
- Social Media

Continuing Challenges

- Managing Expectations
- Training
- Evidence of Impact
- User Support
- Financing

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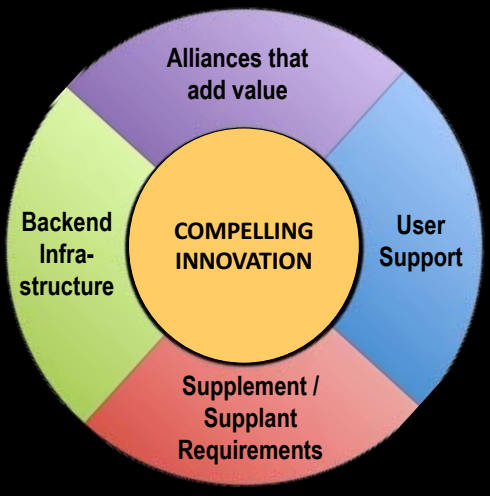
The (Educational) Innovator's Ecosystem



Successful (effective) innovation depends on a ecosystem

- Backend infrastructure
- Front-end user support
- Alliances
- Supplanting current practice

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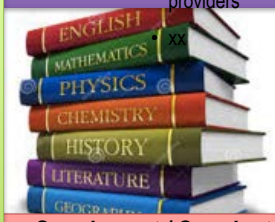
Mapping the Textbook Industry

Textbooks: The Ecosystem Can Also Be a Fortress

Backend Infrastructure
- Authors
- Editors
- Content Designers
- Instructional Specialists
- Contracts

Alliances that Add Value
- Content
- Distribution
- Cross-Licensing
- Technology providers
- xx



Supplement / Supplant Requirements
- Accreditation
- Standards/Reg s
- Curricular Sequences

User Support
- Sales Reps
- Teacher's Guides
- Student Handbooks
- Test Sets
- Web Sites
- Conferences
- Communities
- Call Centers

- High transition costs
- Risk
- Reliability and Sustainability

Source: Green, *Innovation and Infrastructure* (2013)

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False Choices: High Tech vs. High Touch

Whenever new technology is introduced into society, there must be a counterbalancing human response that is high touch or the technology is rejected. *The more high tech, the more high touch.*

John Naisbitt
Megatrends, 1982

Five Key Elements of an Effective Campus eLearning Plan

- Realistic Definitions and Expectations
- Faculty Recognition and Reward
- Training and User Support
- Evidence of Impact
- Sustained Support for IT, Innovation, and Infrastructure

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Tech Enabled High Touch

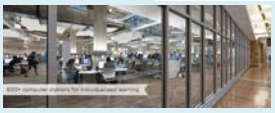
Baccalaureates for Baristas

- Launched in 2014
- Starbucks employees complete degrees at ASU Online
- Counseling and support services are a critical supplement to the course experience.

Eliminating the Graduation Gap at Georgia State

- Innovative use of analytics to eliminate the graduation gap between minority and white students: 1700 more grads annually vs. five years ago
- "Monday morning emails followed by 3000 hours of counseling and support services"

Math Accelerator



- 600 computers in clusters at a redeveloped mall
- Adaptive learning technology from McGraw Hills
- Faculty in the floor working directly with students

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Changing the Data Culture

Culture eats change for breakfast.

Peter Drucker

CHANGE THE CULTURE OF DATA

- ***OLD:*** ***What did YOU do wrong?***
- ***NEW:*** ***How do WE do better?***

Use data as a resource, not as a weapon

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Innovation and the Fear of Trying

If trustees, presidents, provosts, deans, and department chairs really want to address the *fear of trying* and foster innovation in instruction, then they have to recognize that infrastructure fosters innovation. And infrastructure, in the context of technology and instruction, involves more than just computer hardware, software, digital projectors in classrooms, learning management systems, and campus web sites. The technology is actually the easy part. The real challenges involve a commitment to research about the impact of innovation in instruction, and recognition and reward for those faculty who would like to pursue innovation in their instructional activities and scholarship.

Kenneth C. Green • Digital Tweed / *Inside Higher Ed* • 13 July 2017

Guidelines for Machiavellian Change Agents

- Concentrate your efforts
- Pick issues carefully; know when to fight
- Know the history
- Build coalitions
- Set modest – and realistic – goals
- Leverage the value of data
- Anticipate personnel turnover
- Set deadlines for decisions
- Nothing is static – *anticipate change*

Niccolò Machiavelli

Source: J. Victor Baldridge, *Rules for a Machiavellian Change Agent, 1983*

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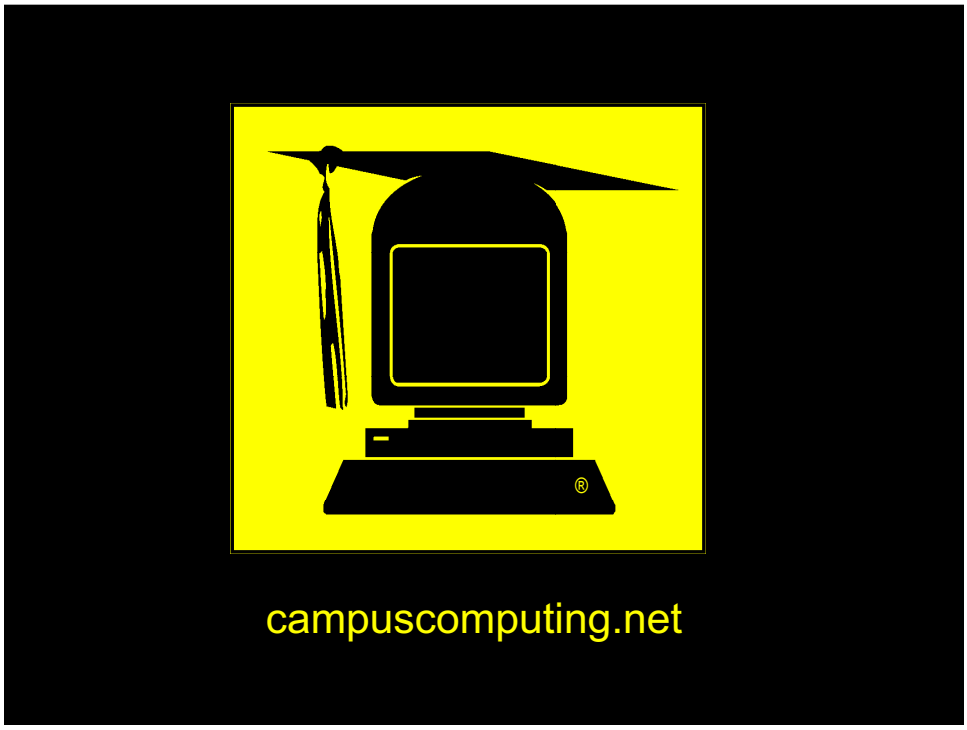

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Kenneth C. Green is the founding director of The Campus Computing Project, the largest continuing study of the role of eLearning and information technology in American colleges and universities. Campus Computing is widely cited as a definitive source for data information, and insight about IT planning and policy issues affecting higher education. Green also serves as the senior research consultant to *Inside Higher Ed* and moderates the weekly *This Week @ Inside Higher Ed* podcast.

An invited speaker at some two dozen academic and professional conferences each year, Green is the author or editor of some 20 books and published research reports and more than 100 articles and commentaries that have appeared in academic journals and professional publications. His *DigitalTweed* blog, recently cited by *EdTech* Magazine as one of the "50 must read higher ed IT blogs," is published by *Inside Higher Ed.*

In 2002 Green received the first EDUCAUSE Award for Leadership in Public Policy and Practice. The EDUCAUSE award cites his work in creating The Campus Computing Project and recognizes his "prominence in the arena of national and international technology agendas, and the linking of higher education to those agendas."

A graduate of New College (FL), Green earned his Ph.D. in higher education and public policy at the University of California, Los Angeles.

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INSIDE HIGHER ED digitaltweed

13 July 2017

Innovation and the Fear of Trying

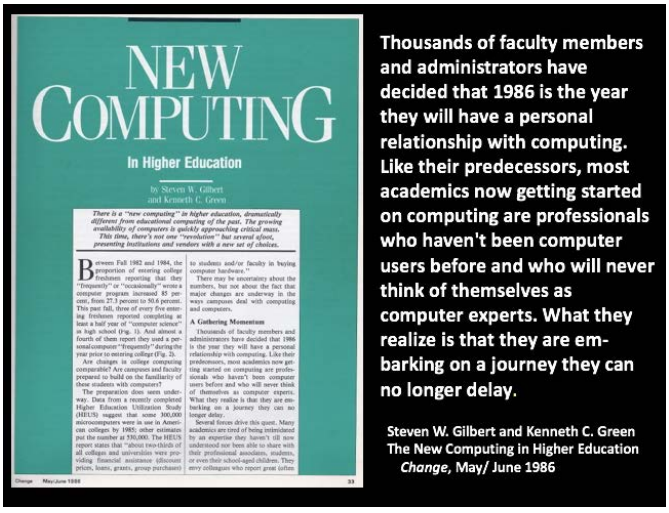
Kenneth C. Green

Last week in Inside Higher Ed, reporter David Matthews of *The Times Higher Education* characterized "as a surprising conclusion" the work of Carnegie Mellon University anthropologist Lauren Herckis that a major barrier to instructional innovation and technology utilization in higher education is that faculty "are simply too afraid of looking stupid in front of their students to try something new."

Alas, this is not a new news. Nor is it a surprising conclusion. The *fear of trying* among faculty, because of the fear of looking awkward, foolish, or incompetent in front of their students, dates back to the arrival of the first microcomputers (aka IBM PCs and Macs) in college classrooms and campus computer labs in the mid-1980s.

Let us review the reasons why the *fear of trying* is neither new nor surprising.

More than three decades ago the core technology skills we now view as essential and today we hope are ubiquitous among students *and* faculty typically were not. Typing, transformed as keyboarding, emerged as a critical skill. In the early-1980s, I attended an interesting presentation on the future of office automation. The speaker, a technology expert from Rand Corp., explained the semantic imperative for talking about *keyboarding*: typing was a (low status) secretarial skill, while keyboarding implied a higher status skill tied to computers. The semantic rebranding of typing as keyboarding, the Rand expert explained, would make learning keyboarding (aka typing) more acceptable to mid- and high-level managers and professionals.


NEW COMPUTING

In Higher Education

by Steven W. Gilbert and Kenneth C. Green

There is a "new computing" in higher education, dramatically different from educational computing of the past. The growing availability of computers is quickly approaching critical mass. This time, there's not one "revolution" but several afoot, presenting institutions and vendors with a new set of choices.

Between Fall 1982 and 1984, the proportion of entering college freshmen reporting that they "frequently" or "occasionally" wrote a computer program increased 85 percent, from 27.3 percent to 50.6 percent. This past fall, three of every five entering freshmen reported completing at least a half year of "computer science" in high school (Fig. 1). And almost a fourth of them report they used a personal computer "frequently" during the year prior to entering college (Fig. 2).

Are changes in college computing comparable? Are campuses and faculty prepared to build on the familiarity of these students with computers?

The preparation does seem underway. Data from a recently completed Higher Education Utilization Study (HEUS) suggest that some 300,000 microcomputers were in use in American colleges by 1985; other estimates put the number at 550,000. The HEUS report states that "about two-thirds of all colleges and universities were providing financial assistance (discount prices, loans, grants, group purchases) to students and/or faculty in buying computer hardware."

There may be uncertainty about the numbers, but not about the fact that major changes are underway in the ways campuses deal with computing and computers.

A Gathering Momentum

Thousands of faculty members and administrators have decided that 1986 is the year they will have a personal relationship with computing. Like their predecessors, most academics now getting started on computing are professionals who haven't been computer users before and who will never think of themselves as computer experts. What they realize is that they are embarking on a journey they can no longer delay.

Several forces drive this quest. Many academics are tired of being intimidated by an expertise they haven't (ill now understand nor been able to share with their professional associates, students, or even their school-aged children. They envy colleagues who report great (often

Thousands of faculty members and administrators have decided that 1986 is the year they will have a personal relationship with computing. Like their predecessors, most academics now getting started on computing are professionals who haven't been computer users before and who will never think of themselves as computer experts. What they realize is that they are embarking on a journey they can no longer delay.

Steven W. Gilbert and Kenneth C. Green
The New Computing in Higher Education
Change, May/ June 1986

Concurrent with keyboarding was, of course, learning to use and master key computer applications such as word processing, spreadsheets, and presentation software. Understandably this was a time-intensive and often frustrating task for many mid-career faculty some 25-35 years ago, despite the best efforts of their institutions to provide faculty only training programs and one-on-one instruction (alas, often provided by tech-savvy undergraduates).

But even as faculty began to acquire these core tech skills, other *fear of trying* factors emerged. For example, by the early/mid-1990s, I began hearing reports of what I would come to characterize as a new form of "Oedipal aggression in the classroom." Beyond mocking professors for their academic demeanor or attire, students could now chastise faculty for their discomfort with technology:

- One dimension of the tech discomfort was when faculty would have to type (or rather, keyboard!) in front of their students. When fumbling keyboarding efforts were projected onto a classroom screen, faculty often confronted the stage whispered comment that "Oh look! Professor Jones can't type."
- Internet access to primarily sources – including faculty authors at other institutions – emerged as the second dimension of public professorial discomfort. If Prof. Jones was not available to discuss an assigned reading, students could easily email their questions directly to Prof Wilson, author of the assigned article. And, in turn, Prof. Wilson might respond with more than just answers, perhaps asking to see the syllabus that included his or her work.
- A third dimension of the public professorial discomfort emerged as classrooms went wireless, enabling students to easily fact check faculty in real time: "Prof. Green: your data are interesting, but dated. I'm looking at the most recent numbers from the same source you used, and things have changed a bit."

Beyond the public potential for embarrassment, one continuing factor in the conversation about innovation and the *fear of trying* has been the absence of compelling evidence that a new technology or innovative instructional technique really does make a difference in

student learning and outcomes. Four decades into the much discussed (and hyped!) "IT revolution" in higher education, a good portion of the campus conversation about innovation and technology remains driven by opinion and epiphany, rather than hard evidence documenting impacts and outcomes. Consequently, it is not surprising that many faculty would understandably be ambivalent about "attempting to innovate" in their instructional activities if there is no evidence that "innovation" affects student learning and outcomes.

Finally, there is the continuing absence of collegial, departmental, and institutional recognition and reward for innovation that affects the *fear of trying.* Data from The Campus Computing Project confirm that the vast majority of the two-and four-year American colleges and universities have not expanded the algorithm for review and promotion to include faculty efforts at instructional innovation and technology. So despite the public proclamations of presidents and provosts about the "key role of innovative information technology resources here at Acme College," review and promotion decisions reside in the hands of departmental colleagues and chairs who have largely been unwilling adopt an expanded notion of scholarship for their (often younger) colleagues who would like to pursue innovation in their instructional activities.

If trustees, presidents, provosts, deans, and department chairs really want to address the *fear of trying* and foster innovation in instruction, then they have to recognize that infrastructure fosters innovation. And infrastructure, in the context of technology and instruction, involves more than just computer hardware, software, digital projectors in classrooms, learning management systems, and campus web sites. The technology is actually the easy part. The real challenges involve a commitment to research about the impact of innovation in instruction, plus recognition and reward for those faculty who would like to pursue innovation in their instructional activities and scholarship. IHE

Kenneth C. Green, the Digital Tweed blogger at *INSIDE HIGHER ED,* is the founding director of The Campus Computing Project, the largest continuing study of the role of computing, eLearning, and information technology in American higher education.

THE CAMPUS COMPUTING PROJECT

campuscomputing.net October 2016

The 2016 National Survey of eLearning and Information Technology in US Higher Education

KEY CAMPUS IT ISSUES: Personnel, Instruction, Budgets, Security, and Analytics

Hiring and retaining IT talent has become increasingly challenging for a growing number of colleges and universities. Large numbers of CIOs and senior campus IT officers report that IT budgets at their institutions have not fully recovered from the compounding consequences of the annual budget cuts and mid-year budget reductions of the Great Recession. Assisting faculty with the instructional integration of information technology remains a top campus IT priority even as higher education is now in the fourth decade of its much discussed "technology revolution." IT security remains continuing challenge. And for all the conversation, on- and off-campus, about the power of Big Data and analytics, there is ample evidence that campus IT officials do not view current institutional investments in analytics as effective or that the outcomes of these investments are, at present, satisfactory.

These are some of the key findings from the fall 2016 Campus Computing Survey. Launched in 1990, Campus Computing is the largest continuing study of IT planning and policy issues in American higher education." The 2016 survey is based on data provided by CIOs and senior campus IT officials at 339 two- and four-year colleges and universities across the United States.

The Compounding Consequences of Budget Cuts

Eight years after the beginning of the Great Recession, almost two-thirds (63 percent) of the CIOs and senior IT officers who participated in the 2016 survey report that IT funding at their campus "has not fully recovered from the budget cuts we have experienced over the past four-six years." As shown below, almost a third of public universities and BA/MA institutions, a quarter of private BA/MA colleges, a fifth of private universities, and more than two-fifths of community colleges experienced IT budget cuts for the 2016-2017 academic year. Moreover, many campuses also suffered mid-year budget reductions for 2016/17, averaging 8 percent, which compounds the consequences of the annual budget cuts. Unfortunately, this has been the recurring cycle for a significant number of institutions across all sectors: an annual budget cut followed by a mid-year budget reduction.

IT Budget Cuts, Fall 2016 *(percentages)*	Annual Budget Cut	Mid-Year Budget Cut	Mean Mid-Year Cut
All Institutions	29.5	24.7	8.1
Public Universities	32.7	17.3	4.9
Private Universities	18.7	15.2	3.4
Public BA/MA Colleges	31.1	15.5	12.0
Public BA/MA Colleges	23.1	30.5	8.0
Community Colleges	43.1	32.3	9.3

"These continuing budget cuts and mid-year reductions come as campus IT officials experience rising demand for resources and services: enhanced IT security, exploding demand for faster wireless networks, rising licensing costs for mission critical ERP applications, increased personnel costs, and growing demand for user support services" says Kenneth C. Green, founding director of The Campus Computing Project. "At many institutions, the rising demand coupled with continuing budget cuts threaten to overwhelm the core IT infrastructure – mission critical instructional resources and administrative services."

Interestingly, although 90 percent of the survey participants report that "senior campus leadership understands the strategic value of institutional investments in IT infrastructure, resources, and services" and 84 percent report strong faculty support for "the role of technology to enhance teaching and instruction," these high levels of administrative and faculty support have not been sufficient to stem the recurring budget cuts experienced by too many institutions, especially public colleges and in particular community colleges.

The 2016 survey data also highlight the role of student IT fees as a key source of funds for campus IT budgets. Across all sectors, the majority of institutions add the student IT fees to the core campus IT budget rather than sequester these funds for new, supplemental services and resources intended to serve students. Interestingly, although private institutions are less likely than public colleges and universities to have a student technology fee, the student fees are higher in private institutions.

Student IT Fees *(percentages)*	ALL INSTITUTIONS	Pub. Univ.	Pvt. Univ.	Pub. BA/MA	Pvt. BA/MA	Comm. College
Campus has a Student IT Fee?	54.6	76.5	32.3	70.7	41.2	60.2
Average Full-time Student IT Fee	$ 275	233	399	231	370	198
Allocate IT Fees to Core IT Budget	72.3	72.2	57.1	69.2	76.3	77.1
Allocate IT Fees for New Services	26.9	27.8	42.9	30.8	23.7	22.9
Inform Students About How the Campus Spends IT Fees?	26.9	27.8	42.9	30.8	23.7	22.9

"At one time many institutions used student IT fees to provide new, supplemental services rather than to supplant stressed core campus IT budgets," says Green. The 2016 survey data reveal that student fees are now overwhelming used to replace funds lost due to continuing IT budget reductions.

Hiring and Retaining IT Personnel

Hiring and retaining IT personnel, one of the top five IT campus priorities in recent surveys, moved to the top priority in fall 2016. More than four-fifths (82 percent) of the survey participants identified "hiring/retaining qualified IT staff" as a "very important" campus IT priority over the next two-three years. Not surprisingly, a key factor affecting staffing is money: three-fourths (75 percent) of those surveyed agreed/strongly agreed that "we have a difficult time retaining IT talent because our salaries and benefits are not competitive with off-campus job opportunities." The IT staffing problem can be particularly challenging in rural areas and small college towns, where the competition for a limited pool of IT talent may be intense and expensive.

IT Priorities

In addition to IT staffing, the top five campus IT priorities for fall 2016 focus on instruction, IT security, user support services, and leveraging IT resources to advance the institutional priorities for student success and degree completion.

"Perhaps not surprisingly," says Green, "the list of the top five IT priorities has been fairly stable for the past several years. Campus IT officers confront and must manage their budgets to accommodate rising, and at times competing, demands for a wide range and growing range of IT resources and services."

Top Five Campus IT Priorities Over the Next Two-Three Years, Fall 2016

pct. of institutions reporting very important (6/7)
scale: 1=not important; 7=very important

1	Hiring / retaining qualified IT staff (82%)	• 75% report IT salaries are not competitive • 28% have reduced IT staffing • 23% cut funds for professional development
2	Assisting faculty with the instructional integration of IT (81%)	• 23% assess faculty IT training as excellent • 17% have a formal policy to assess faculty IT efforts as part of review and promotion
3	Upgrading / enhancing network and data security (81%)	• 49% report network attack (60% in univ.) • 48% increased spending on IT security • 51% expect loss of sensitive campus data
4	Providing adequate user support services (78%)	• User support overrated: *59% very satisfied??* • IT training for faculty: *just 27% excellent.* • IT training for students: *just 10% excellent.*
5	Leveraging IT resources to support student success (76%)	• Using Courseware in Gen Ed classes: 12% • Only 25% assess impact of IT on instruction • Just 16% "very satisfied" with analytics

Great Faith in the Power and Potential of Technology

Notwithstanding the IT challenges their institutions confront, CIOs and senior campus IT officers continue to express great faith in the power of technology to enhance, if not transform, instruction and learning at their campuses. For example, 88 percent agree/strongly agree that "digital curricular resources provide a richer and more personalized learning experience than traditional print products." And 96 percent of the 2016 survey participants believe that "adaptive learning technology has great potential to improve learning outcomes for students."

Yet even as they see great potential for instructional technologies and digital resources, four-fifths (81 percent) of CIOs and senior campus officials identify "assisting faculty with the instructional integration of information technology" as a "very important" institutional IT priority over the next two-three years.

Strong CIO Support for the Instructional Benefits of Information Technology (*percentage who agree/strongly agree*)	ALL INSTITUTIONS	Pub. Univ.	Pvt. Univ.	Pub. BA/MA	Pvt. BA/MA	Comm. College
Adaptive learning technology has great potential to improve learning outcomes for students	95.8	94.1	97.0	98.3	93.9	98.4
Digital curricular resources provide a richer and more personalized learning experience than traditional print materials	87.5	88.2	90.9	87.9	81.7	96.8
Campus efforts at "going digital" are impeded because not all students have access to notebook computers or tablets.	29.7	17.6	9.1	32.8	22.9	61.9

"This strong statement of support for digital instructional resources, coupled with the concern for making better use of technology in instruction, is not surprising," says Green. "CIOs and senior campus IT officers are, understandably, advocates for the instructional use of technology at their institutions. Although faculty make decisions about curricular resources for their courses, CIOs are responsible for the enabling infrastructure, including much of the student and faculty training and user support services."

Yet Green also notes that the absence of clear and compelling evidence about the benefits of technology in instruction and the impact of IT on learning outcomes can be problematic. For example, the survey data reveal that just a fourth of the institutions that participated in the 2016 survey "have a formal program to assess the impact of IT on instruction and learning outcomes." Consequently, comments Green, "decisions about IT in instruction are often fueled by good intentions, anecdotal data, opinion, and epiphany as opposed to research and hard evidence."

Analytic Angst

The public and campus conversations about the power and potential of Big Data and analytics notwithstanding, this year's survey provides evidence of "analytic angst" across all sectors of American higher education: the survey data suggest the performance of analytics has fallen far short of the campus need and anticipated benefits. Less than a fifth of the survey participants assess recent campus investments in analytics as "very effective." And just 16 percent report that across their institution, most users are "very satisfied" with current analytic tools and resources.

"The campus angst with analytics should not be surprising," notes Green. "As with so many new technologies in the consumer, corporate, and campus markets, the actual, implied, and inferred promises often fall short of initial performance." Green notes the current disappointment with analytics on campus is not new. His 2011 and 2012 surveys of college presidents, chief academic officers, and CIOs all indicated that these senior campus officials did not assess the investment in analytics as "very effective."

"The effective use of analytics involves more than deploying a new technology. While good analytic tools are, of course, important, so too is user training, so that senior campus officials and faculty who are eager for just-in-time, complex analyses of student performance understand the potential and the limits of their data and their analytic tools." Green also notes that the effective use of analytics many require a major change in culture at many institutions, a transition from using data as a weapon to using data and analytics as a resource: "The key question should be not what did we do wrong, but how can we do better, and how to the data and analytic tools show us the path 'to better' for our students."

IT Security

IT security remains a continuing challenge across all sectors of American higher education. In aggregate, more two-fifths of the institutions participating the survey experienced the loss of confidential data due to the theft of a device and hacks or attacks on campus networks in A/Y 2015/16. Universities, in particular, appear to be attractive targets. A fourth of the surveyed campuses had experience with either spyware or ransomware this past year experience and also with a student security incident such as cyber-bullying via social media. Security problems caused by employee malfeasance, often a reflection of stress, anger, or over-worked IT staff, were also problems for many institutions, especially universities.

IT Security Issues, A/Y 2015/16 (*percentages*)	ALL INSTITUTIONS	Pub. Univ.	Pvt. Univ.	Pub. BA/MA	Pvt. BA/MA	Comm. College
Theft of a computer, phone, tablet, or USB drive or other device with confidential data files	44.4	63.5	60.6	39.7	42.0	30.8
Hack/attack on the campus network	48.8	78.8	69.7	44.8	40.5	35.4
Spyware / Ransomware	22.4	38.5	21.2	22.4	20.6	12.3
Student security incident linked to social media activity (bullying, etc.)	23.5	36.5	27.3	31.0	21.4	9.2
Employee malfeasance	10.9	21.2	21.3	5.2	6.9	10.8

The 2016 Campus Computing Survey is based on data provided by senior campus IT officials, typically, the CIO, CTO, or other senior campus IT officer, representing 339 two- and four-year public and private/non-profit colleges and universities across the United States. Survey respondents completed the online questionnaire from September 13 through October 20. PDF copies of the 2016 Campus Computing Survey will be available on December 10th from The Campus Computing Project in Encino, CA (campuscomputing.net). Price: $45, which includes shipping to US addresses.

THE CAMPUS COMPUTING PROJECT

Begun 1990, The Campus Computing Project is the largest continuing study of the role of computing, eLearning, and information technology in American higher education. The project's national studies draw on qualitative and quantitative data to help inform campus IT leaders, college faculty and administrators, policy-makers, and others interested in a wide array of information technology planning and policy issues that affect colleges and universities.

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