

Top-Ten Teaching and Learning Issues, 2007

Creating a culture of evidence tops the list of important issues as the academic technology profession moves to an "Instruction 2.0" world

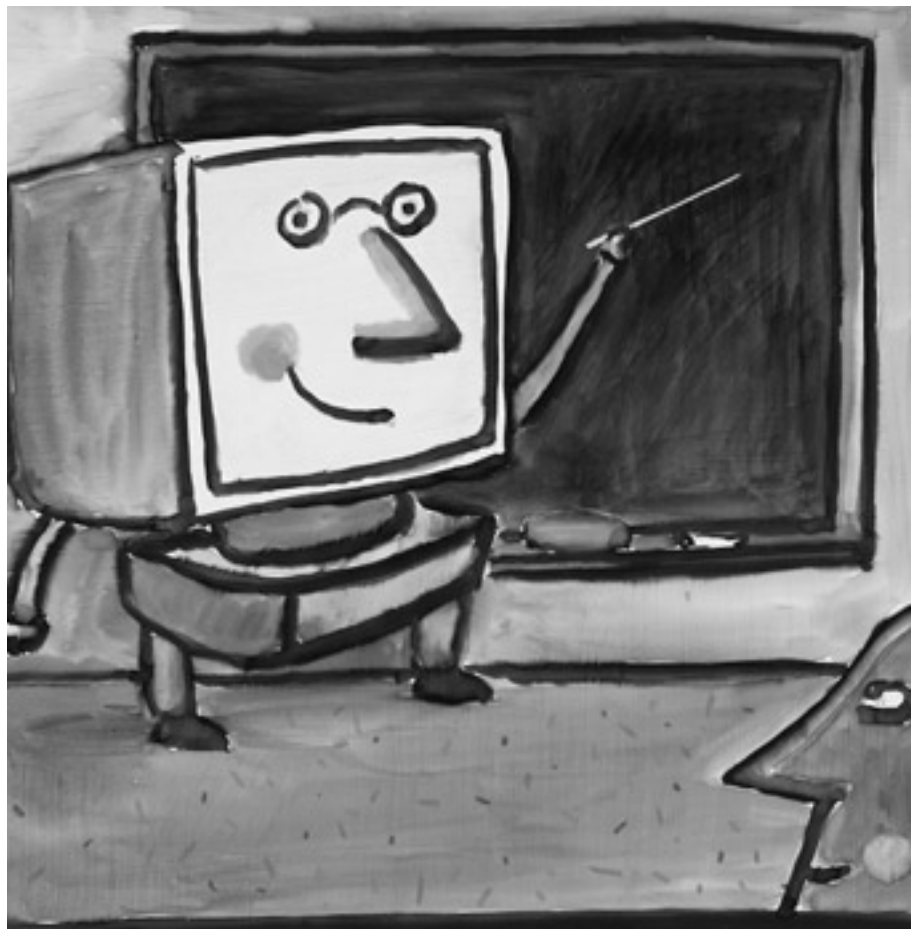
By **John P. Campbell, Diana G. Oblinger, and Colleagues**

The EDUCAUSE Advisory Committee for Teaching and Learning (ACTL) has identified the key technology-related teaching and learning issues in higher education for 2007. This is a particularly important time for the academic technology/instructional design profession, which is moving beyond the formative stages. In surveying themes and issues this year, ACTL believes that we are moving toward "Instruction 2.0." Just as emerging Web 2.0 technologies are clearly reshaping the Web and online media, innovations in instructional practice and academic technology are now clearly moving higher education in new directions.

The growing emphasis on a culture of evidence is reflected in this maturation of academic technology. The profession is moving beyond the early stages of providing "novel" implementations and random acts of progress. As academic technologists, we are increasingly expected to become more systematic and reflective in our approaches to transforming and assessing teaching and learning. We are also developing a richer understanding of learning and how to support our campus constituents. As a result of the current educational environment, ACTL identified the following 10 important teaching and learning issues:

1. Establishing and supporting a culture of evidence
2. Demonstrating improvement of learning
3. Translating learning research into practice
4. Selecting appropriate models and strategies for e-learning
5. Providing tools to meet growing student expectations
6. Providing professional development and support to new audiences
7. Sharing content, applications, and application development
8. Protecting institutional data
9. Addressing emerging ethical challenges
10. Understanding the evolving role of academic technologists

Within the list of 10 issues, themes appear. For example, questions of assessment and best instructional practices figure prominently (issues 1, 2, 3, and 4). Similarly, changes in student,



faculty, and institutional expectations over the past 10 years emerge (issues 5 and 6). Collaboration and how we work together is a theme across higher education (issue 7). And, as with any evolving profession, ethics, privacy, and data stewardship issues continue to grow (issues 8, 9, and 10). Each of the top-ten teaching and learning issues is explored below.

No. 1: Establishing a Culture of Evidence

Americans are attending colleges and universities at an unprecedented rate despite the increased cost of a college education. The average cost of attending a four-year public university has risen to \$12,796 per year, up 35 percent from five years ago; the average cost of attending a private college jumped to \$30,367 annually. Compounding the problem of increased cost is the steady increase in time to degree completion. For the graduating class of 2000, the average degree-completion time was 6.2 years in a four-year public college and 5.3 years in a private institution.¹

Given that college education is now one of the most important and expensive investments for American families, the call for accountability in higher education has intensified. U.S. Secretary of Education Margaret Spellings's action plan includes accountability as one of the three central issues (along with accessibility and affordability) for higher education and argues that colleges and universities must be more transparent about student success outcomes.²

Higher expectations and the demand for accountability have led to the proliferation of reporting requirements from federal, state, accreditation, trustee, and other governing boards. While not lacking in volume or detail, the resulting reports can be overwhelming, confusing, disconnected, and sometimes misleading.³ The rigid nature of the reporting requirements has left little room for institutions to develop a meaningful and effective accountability system. The growing demands for accountability imply a diminishing trust in higher education by policymakers and the general public. Colleges and universities are responding

by engaging in an ongoing dialogue to develop a set of learning outcomes. They are recognizing the need for better systems that move beyond counting objects (such as computers, books, and so on) to measuring learning outcomes.

This new focus on accountability will place demands on academic technology units by focusing attention on how course management systems (CMSs), e-portfolios, and emerging learning outcomes systems can be used for college, department, and program-level assessment. By straddling the academic and information technology domains, academic IT units will either be directly involved in the planning or directly impacted by the decisions.

As we look to academic systems to support accountability efforts, academic IT leaders must assist the campus community in focusing the scope of the efforts, setting priorities, and determining appropriate implementation phases. Academic technologists must catalyze frequent exchanges between institutions on improving and measuring student learning. Based on these discussions, academic technologists can help institutions ask the right questions and find appropriate, scalable solutions. Academic technologists should consider the following questions when exploring accountability:

- What kind of administrative leadership and support might be required?
- What learning outcomes need to be tracked at the course, program, department, college, and institution levels? What evidence is necessary to demonstrate progress in learning and improvement of educational quality?
- What groups on campus need to be represented during this process? What is the role of technology? What is the role the academic IT unit?
- How do we ensure that the administrative process used to collect and manage the data is of the highest quality and meets all regulations?
- What training will be required to assist faculty and staff to translate the data into best practices? What kind of incentives and rewards might be required to encourage participation?

- How can the findings be communicated to key stakeholders in a clear and meaningful way?

No. 2: Demonstrating Improved Learning

Technology and its uses in learning, research, and student service are accepted as an integral part of the higher education landscape. Active dialogue and research on technology-enhanced teaching and learning are under way at numerous institutions. Through the efforts of educators at institutions across the nation, our collective understanding of learning is being enhanced along with our understanding of the value that technology brings to higher education instructional environments. Moreover, the importance of providing a technology-rich environment will arguably increase as members of the Net Generation bring with them new expectations and understandings of the world that surrounds them.

Net Geners approach the educational experience much as they do the rest of their world—they have redefined the role technology plays. They present a new set of educational challenges and opportunities, many framed around approaches to learning that are visual, sensory, and engaged.

While few would speculate that technology's role in higher education will diminish in the future, many question whether the comparatively large ongoing investment in technology is justified and whether technology is delivering on the promise of improved learning. As educators have gained new insights into learning, questions about the effectiveness of technology in learning have morphed into discussions focused more on learning styles and pedagogy and less on technology. Today, we understand more about the intersection of learning and technology. Rather than seeing technology-enhanced learning as "something different" from the norm, recognition of the value technology brings to the learning experience—whether in a face-to-face or distance setting—is growing.

IT can provide access to media- and content-rich material, create interactive

learning environments that engage students in new and exciting ways, and enhance the learning experience by visually portraying conceptual thoughts while offering convenience, access, and scalability. Technology has effectively redefined both access to education and the educational process.

The importance of evaluating learning outcomes vis-à-vis technology use is evidenced by scores of educators around the country who are actively engaged in classroom and learning assessment. Assessment often focuses on

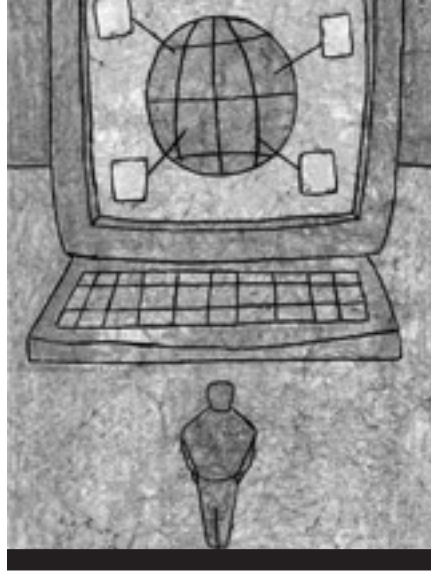
- evidence of improved learning,
- strategies that support and improve teaching, and
- improvement of learning technology tools.

As we continue to explore and document the integration, effectiveness, and value of technology in education, it is important to ask questions such as:

- How does technology augment learning? How can be it used while preserving the quality associated with traditional faculty-student interaction?
- What roles can virtual environments play in the lives of our faculty (such as facilitating office hours and improving student communication)?
- How should our instructional and living spaces and technology evolve to further support and enhance learning as well as personal and professional growth?
- How can technology be used to assist faculty in addressing “administrivia”?
- How can technology improve the lives of our students and prepare them for a future that is increasingly defined within the context of globalization and technology?

No. 3: Translating Learning Research into Practice

Research related to learning, teaching methods, and cognitive science has exploded during the past few decades. New neuroscience techniques “can reveal learning in an alive, awake brain, detecting the impact of experiential learning before it can be observed in behavior.”⁴ Yet as the research base about learning has grown, our ability to stay abreast of the research and



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translate it into teaching practice seems inadequate.

Perhaps our greatest challenge as academic technologists in moving learning research into practice is finding active learning techniques that meet faculty’s needs. Rather than *telling* faculty about the learning research, perhaps we should create ways for them to *experience* it.

Part of the challenge is raising awareness of the research available. The communities of learning researchers—and their conferences and journals—do not necessarily overlap with those of learning practitioners (and they rarely overlap with those of faculty). Academic technologists must therefore make a special effort to locate and understand the research.

Once located, “translating” the research into something faculty can easily use becomes the focus. Faculty are pressed for time—they need materials to be as brief and relevant as possible. Materials must be synthesized and summarized in a jargon-free way. They will not use anything that sounds too complex, involves too many caveats, or does not relate to the classroom. Some are motivated by a “what’s in it for me” attitude: they want to understand how something will benefit their course and their professional development.

Learning is a terribly complex process that is influenced by the conditions

under which it occurs. Summarizing, simplifying, and shortening information without distorting the facts is an extremely difficult and time-consuming endeavor. Even with well-crafted summaries, capturing the faculty’s attention is challenging. Finding the right method to reach faculty amid the constant flood of training opportunities, e-mail messages, and flyers they receive can be difficult.

In translating learning research into practice, academic technologists face issues such as:

- How do we develop a common vocabulary? What exchanges will facilitate communication and enable the research and practitioner communities to “speak the same language”?
- What kinds of experiences will allow faculty and staff to bridge research and practice? Are traditional face-to-face events effective? Or do learning experiences need to incorporate hands-on demonstrations along with discussion and reflection? Can online resources provide just-in-time support as individuals have questions?
- What evidence is required to make a case for attending to learning research and practice? Can discussions with students provide the impetus? Are institutional research or assessment data necessary? What kind of administrative leadership might be needed?
- When and where should this research-to-practice mind-set be developed? Should graduate student professional development programs inculcate this mind-set in future faculty? What rationale will encourage graduate students to devote time to the endeavor?
- How does bridging research and practice become part of the institution’s culture? Does it require data? Discussion? Rewards?

No. 4: Selecting Models and Strategies for E-Learning

Higher education is inundated with ever-changing e-learning methods and strategies. The learning curve and long-term investment vary significantly from model to model. Amid changing requirements, institutions struggle to make sense of how to balance the

different approaches while operating within constrained budgets and resources. They must take an iterative approach to implementation to determine which models produce quantifiable results and positive learning outcomes.

As an institution considers implementing an e-learning model, academic technologists must work within the institutional culture and determine the key constituents, whose involvement will ultimately determine the success of the project, as will effective communication of the final strategy. Constituents may include students or consumers of the service or product, faculty, information and learning technology experts, support personnel, and administrators.

Academic technologists must consider organizational needs and align e-learning strategies to address them while recognizing faculty's diverse needs. Sustainability, central support, and mainstream adoption must be balanced with individual needs and sound pedagogy. Our role is to help advance the use of technology to support the institution's instructional mission, with the priority of matching solutions with faculty needs. We also need to empower faculty to progress in a self-directed manner. In addition, we must proactively identify tools and strategies before they are widely needed by faculty.

A successful e-learning strategy does not exist in isolation—it should address a number of organizational goals while being both sustainable and scalable. Academic technology units will be asked to select strategies that focus on problem areas that can be addressed via e-learning. For instance, they may be expected to provide additional support for key program areas or assistance with institutional issues such as access, affordability, effectiveness, and accountability.

Questions to ask before you select a particular e-learning model or strategy include:

- What are the organization's short-and long-term goals for e-learning? How does the strategy address them?
- What are the learners' characteristics (educational preparation, desired out-

comes, preferred delivery modality, technology skills, services and support needed)?

- What are the characteristics of the faculty we serve (interest in e-learning, understanding of the relationship between content and learning strategies, knowledge of how students learn and how to use technology to enhance teaching and learning)?
- What infrastructure will we need to support the e-learning strategy (technological infrastructure, hardware, software, support personnel)?
- What organizational model best supports the e-learning strategy?
- How can we take an iterative approach? Which key stakeholders need to be involved in the project? How can the project remain scalable and supportable?

No. 5: Providing Tools to Meet Student Expectations

As technology is integrated into contemporary society, higher education must balance the expectations of a new generation of technology-savvy students with the perspectives of an older generation of faculty. Often referred to as the Net Generation or Millennials, today's students have grown up in a rich digital environment where technology is both transparent and ubiquitous. Technology has always been part of their lives, from the Internet to laptops, iPods, games, instant messaging (IM), cell phones, and pagers. They take technology for granted—they expect it to be integral to their lives and to serve them, including in education.

Faculty are in a complex position: they must engage students, maintain their own technology skills, and work within potentially change-resistant professional practices and institutional structures. As students themselves, most faculty experienced a learning environment characterized by face-to-face contact, print-based media, and limited interaction.

The differences in generational perspectives are striking. Student reliance on the immediacy of IM promotes a different sense of time and availability than faculty's. The Net Gen's par-

ticipation in collaborative social projects—online gaming environments, wikis, and blogs—places the focus on participation rather than credentials, invoking the “wisdom of the crowd.” Faculty self-identification with a specific academic discipline contrasts with students' interdisciplinary collaboration. Academic technologists who serve faculty and students are thus caught between competing frameworks and expectations.

Instructional technologists work with many faculty who are willing to risk change and are interested in transforming the learning environment through new communication and collaboration modalities. To create a successful partnership between faculty, students, and academic technologists requires understanding how each group contributes to the learning process. The Net Gen will increasingly expect faculty to effectively integrate technology into the learning environment—for them, collaboration is a reality, not an ideal. Faculty must leverage technology and frequently reassess their role in the learning process. Academic technologists must work with both students and faculty as higher education transforms our access to information, our understanding of community, and our sense of personal space and relationships.

In serving the new generation of students, academic technologists should consider:

- To what degree should the institution accommodate the new generation of students (versus teaching them additional learning strategies)?
- What type of support will the next generation of faculty expect?
- What are the most effective strategies for keeping academic technologists up-to-date with incoming students?

No. 6: Providing Professional Development and Support to New Audiences

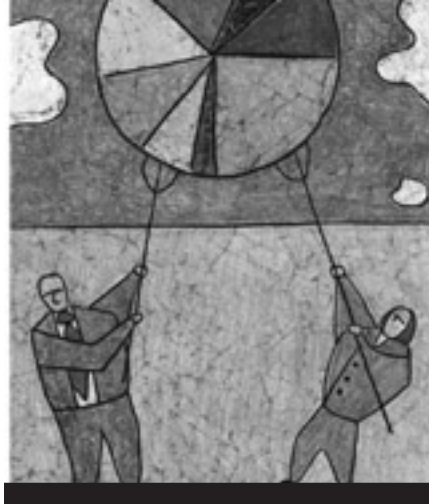
Approximately 20 percent of higher education faculty will retire over the next 10 years.⁵ Consequently, academic technologists must attend to the professional development (PD) and support of the next-generation professoriate,

many of whom are currently teaching assistants and graduate students. Most graduate programs effectively prepare students as researchers but inadequately prepare them as teaching and learning scholars. Academic technologists have the opportunity to examine current PD programs and resources to address these issues.

As Net Gen faculty join the academic ranks, the opportunity exists to engage them in academic technology. This raises the question of whether faculty development is the best approach to fostering technological literacy. An alternate approach targets a portion of our instructional technology programs to graduate students with the goal of influencing the teaching practices of the future professoriate by engaging graduate student teachers and their faculty mentors in technology-enriched teaching and learning practices. We can also foster the pedagogical paradigm shift that needs to occur across all fields of study. Broadening the scope of our institutions' current faculty development programs to include programmatic and mentorship opportunities for our graduate students—the future faculty—is critical.

Today's graduate students span the generations from late Baby Boomers in their 60s to Net Geners in their early 20s. While the majority are Generation Xers who are familiar with a variety of technologies, we should not assume that all graduate students have similar technology skills. In fact, a wide range of technology-comfort-level issues exist. Among Net Gen graduate students, some are eager to explore integrating wikis, blogs, or Tablet PCs into their teaching; others are reluctant to explore these newer pedagogical strategies and prefer to focus on traditional classroom technologies. New faculty may want to learn how to lecture effectively rather than how to develop collaborative experiences.

The institutional willingness to invest significantly in graduate students varies. For some institutions, allocating resources to PD for existing faculty members takes priority over graduate students; for other institutions, training



In higher education, technologies that reduce barriers encourage collaboration

graduate students is a top priority.

Creating an environment that supports current and future faculty can be challenging. Offering graduate students PD opportunities that complement and supplement the experiences they have in their academic departments may make them more competitive in the academic job market. Academic technologists must discover programmatic and sustainable ways to stimulate greater collaboration between faculty mentors and their graduate students. Doing so will both help change current teaching practices and better prepare faculty to engage 21st-century learners.

As academic technologists expand support for new academic professionals, questions to ask include:

- What teaching skills do new faculty need? What technology skills do they need?
- Can we afford to wait until someone becomes a faculty member to provide professional development?
- How do we provide support that is customized to academic disciplines and varying entering skill levels?
- What role does the scholarship of teaching play in the institution's reward system?
- How do academic technologists blend their efforts with those of disciplinary associations?
- Are professional development programs sufficient, or do we need mentors for new faculty?

No. 7: Sharing Content, Applications, and Application Development

The issues facing academic technology units are increasingly complex and interdependent, requiring individuals and institutions to work together. Collaboration allows us to benchmark with our peers, develop affinity groups and consortia, and use resources more effectively.

Collaboration can be a fundamental strategy in higher education. Creating a culture of openness and sharing builds productive individual and institutional relationships that result in mutual benefit. In higher education, technologies that reduce barriers encourage collaboration. As technology continues to advance, the types of collaboration possible will expand. Current collaboration includes sharing library catalogs across institutions, exchanging faculty expertise, and trading instructional tools (such as CMSs).

Technology has generated many new opportunities for collaboration such as social bookmarking, IM, and easy-to-create personal Web profiles. These "digital incunabula" are experimental technologies that impact our lives faster than we can understand them. Ultimately, it is our deeply embedded sociocultural values that determine the success of any technology-enabled collaboration—collaboration thrives when it offers measurable and mutual benefits, the perception of balance and reciprocity, and a high degree of personal or institutional compatibility.

Two of the most compelling examples of successful collaboration are open source software and the open content movement. The development of open source software is a good example of a chaotic meritocracy among individuals who may not even know each other but whose needs are met and work recognized by using digital technologies such as listservs, Web sites, bug tracking, version control, and co-browsing.

Educational community source has arisen as a particularly successful branch of the open source movement in which universities organize and lead software development tailored to higher

education's specific needs. This collaboration promises to be one of the most productive as the innovative products of these open source movements mature and continue to achieve greater acceptance. Forward-thinking institutions also embody this culture of openness by freely sharing their work products as open courseware, which makes curricular content available free of charge under a license that permits use and adoption by others.

As institutions begin to examine the potential of collaborations, they should consider the following questions:

- What problems are being faced by multiple institutions?
- What are the expectations of the collaboration (information sharing, content sharing, application development)?
- How would your institution judge the collaboration a success? What criteria will be used to evaluate collaborations and measure success?
- Who are the most likely collaboration partners?
- How much effort is your institution (and your partnering institutions) willing to spend on the collaboration project (time, money, people)?
- Are there existing collaborations that your institution should join?

No. 8: Protecting Institutional Data

Information is recognized as an important asset in business. Competitive, economic, and strategic intelligence all begin with the aggressive collection and effective use of information. The academic world has joined the information movement and is finding innovative and productive ways to analyze and mine its information resources, combining data from heretofore unrelated sources to yield insights, early alerts to new trends, decision support, better targeting of "products," and increased productivity.

Access and integration are key to the effective use of information in higher education. Access involves technology and "ownership," which is often the biggest barrier to the effective use of institutional data; integration involves



Stewardship fosters a higher degree of receptivity and cooperation than ownership

combining information from a variety of often unrelated sources to yield new information. Crossing boundaries between the registrar, the CMS, and the financial aid system, for example, may involve multiple reporting paths and new collaborations.

Academic technologists have unprecedented access to information. Over the past decade they have adopted applications that not only facilitate instruction but also collect a wide range of data in the process. As technology has evolved and the number of users has increased, they manage an enormous amount of diverse educational data—student grades, assignments, and tracking information stored in the CMS, e-portfolios, audience response systems, file systems, online collaboration systems, and more—making them in effect data stewards.

Many academic technologists, however, still view themselves not as data stewards but as student information system data users charged with creating and populating course-centered tools. Language informs many things, including attitude, and can help effect a shift in mentality. If those who have responsibility for information systems on campus can view their role as information *stewards* rather than *owners*, it becomes easier to share information. The idea of being a caretaker of information implies using that data for the common good.

Stewardship fosters a higher degree of receptivity and cooperation than ownership. Nevertheless, institutions must continue to seek assurances of appropriate use of information and advocate for its best institutional use.

With the push for accountability, academic technology units are positioned to become good stewards of the data they oversee—they can develop innovative and productive ways to use this information to benefit the institution. To be effective, they must understand the nature of the data and commit time to develop new methods, support systems, and benchmarks to address institutional needs.

Academic technologists' evolving role as data stewards raises questions institutions should examine, including:

- What sources of data are currently housed within the academic technology unit? What data should be retained?
- How can the data be used to improve teaching and learning? How should other parts of the university be made aware of this data?
- How will staff be trained on proper data handling? What training is necessary for academic technology staff? How will access to the data be provided?
- What policies and procedures must be established for data storage, backup, retrieval, mining, and retention?
- What data falls under the Family Educational Rights and Privacy Act (FERPA)?
- What data should be placed in the data warehouse for analysis? How frequently should the data be updated?

No. 9: Addressing Emerging Ethical Challenges

Ethical issues are perennially debated in higher education, yet the academy has not taken a systematic look at ethical issues related to teaching or the support of teaching. As the demands for accountability increase and as technology provides unique insights into students' efforts and aptitudes, the ethical issues associated with academic success and retention will likely move to the forefront.

Institutions' use of data from various academic technology solutions such as the CMS will have significant ramifications. The analysis of academic data necessitates a dialogue on our ethical responsibility to the learning process. Empowered with new information, faculty, administrators, and academic technologists will struggle to find a balance between making students too reliant on external help and encouraging them to become independent learners.

While academic technology has a significant impact on the lives of students, the literature remains silent on the ethical implications of actions that promote—or ignore—student retention and academic success. Academic technologists will be among those who must engage in this debate.

For example, CMSs automatically collect a wide array of data on student usage. Emerging analytic techniques using the CMS data will reveal which students are performing well and which need additional help. In addition, using analytics to predict academic success will force many faculty and academic technologists to examine issues that have ethical implications such as accountability and the distribution of resources. Access to formulas that predict students' failure and success will place academic technologists in the middle of an ethical debate as faculty, students, and institutions examine their responsibilities related to academic success and retention.

The ethical issues are best examined and framed as *how* to interact with the new knowledge and technology rather than *what* the right answer is. This pragmatic view focuses on using information in a meaningful and effective manner. Faculty, students, and institutions alike must examine the implications of data that predict academic performance. The question of how to use this information cannot be answered just once—it must be weighed against higher education's changing environment and key stakeholders' shifting expectations.

The use of CMS data to predict academic performance poses an interesting set of ethical issues:

- Should students be told their behaviors are being tracked?
- How much information should be provided to students or faculty?
- How should the faculty react to the data? Should faculty contact students? Will the data influence faculty perceptions of students and the grading of assignments?
- What amount of resources should the institution invest in students who are unlikely to succeed in a course?
- What information should be provided to parents, the athletic department, issuers of scholarships, and others?
- What obligation do students have to seek assistance?
- What is the role of the academic technologist?

No. 10: Understanding Our Evolving Role

The traditional roles of academic technologists on campuses are changing. Once a position focused on assisting the early adopters in instructional design or educational technology, the academic technologist today faces an increasing set of expectations. The rapidly changing nature of technology, students, and faculty require us to look at new paradigms for providing sustainable and scalable teaching and learning support.

After decades of promises that instructional technology can improve instruction, institutions want results. They've become skeptical of large investments and expect a more complete assessment of performance. Academic technology is also a victim of its own success: once seen as a competitive advantage or "nice" activity, it is now a fundamental campus component. To meet these new demands for accountability and usability, the role and skills of academic technologists must evolve.

First and foremost, the academic technologist is expected to act as an expert resource on best practices in educational technology. Awareness of a broad research base is essential to working with faculty. In addition to developing computer workshops, learning materials, and Web-based multimedia

resources, the academic technologist is expected to provide executive summaries to administrators and serve on key institutional committees.

The traditional role of providing knowledge and leadership in instructional development and delivery will persist—academic technologists must maintain knowledge of online methodologies, instructional design, Web

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and multimedia design, accessibility and adaptive learning technologies, and learning styles—plus acquire new knowledge of emerging technologies and student preferences.

With the trend toward increased accountability, academic technologists must also occasionally serve as assessment specialists, defining the standards by which learning materials and tools are evaluated. They may lead efforts to evaluate large, complex, or highly specialized systems related to the teaching and learning enterprise. They may also be asked to conduct independent research on instructional design, learning theory, or instructional technology topics and evaluate effectiveness on an organizational level.

The ability to influence key stakeholders and business processes across the college or university will become an essential skill. To achieve this influ-

ence, academic technologists must have a thorough understanding of the institution's vision and how various educational initiatives impact university practices. They must have a grasp of existing research, serve on university-wide committees, and demonstrate the creativity needed to address novel educational situations.

The evolving role of academic technologists will require a new approach to staff recruitment, selection, and professional development. An institution must consider:

- What role will academic technologists play in accountability efforts?
- How well do academic technologists understand the scholarship of teaching and learning? How do they maintain current knowledge in the field?
- Can academic technologists communicate technical and nontechnical content to all levels of the organization?

- How will academic technologists be mentored to understand the institutional culture?

Conclusion

As the academic technology profession has matured over the past decade, expectations have risen for accountability, effectiveness, facilitation, and implementation. Collaboration, stewardship, ethics, and change are becoming part of everyday life for academic technologists. Today's top-ten issues facing academic technologists provide a unique opportunity for the profession to shape and contribute to campus priorities and solutions. ACTL hopes the critical issues in teaching and learning identified here will help our community create professional development opportunities and programs that effectively address the needs of the "Instruction 2.0" world. *e*

Endnotes

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