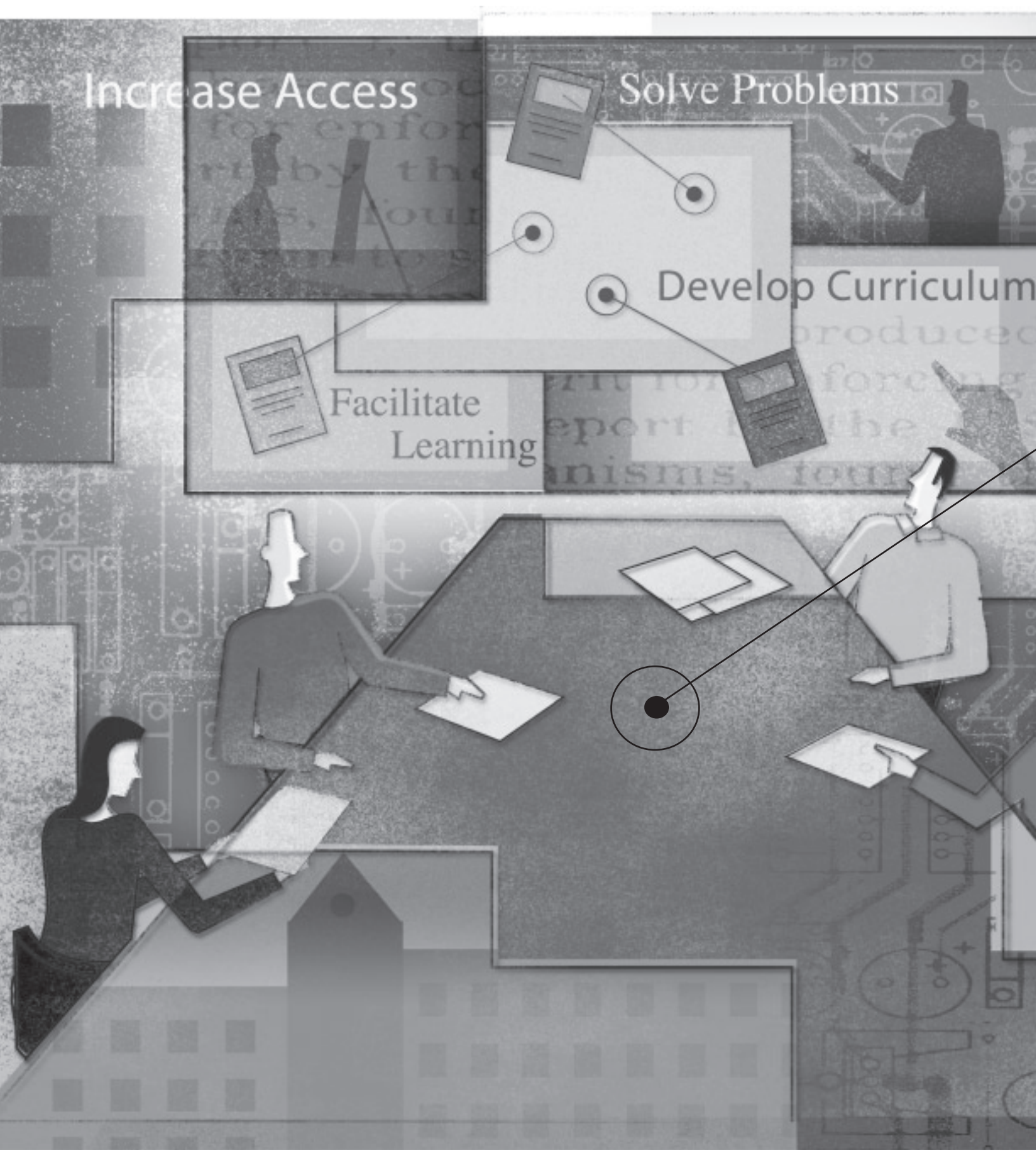



Increase Access

Solve Problems

Develop Curriculum

Facilitate Learning

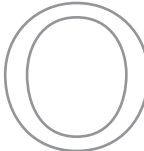




Rethinking ACADEMIC TECHNOLOGY LEADERSHIP in an Era of Change

The senior academic technology officer provides leadership across instructional technology initiatives, yet few campuses have a SATO position in place

By **Michael J. Albright** and **John Nworie**

ur professional environment is called higher education, not higher research or higher service or higher administration. Teaching and learning are central to the mission of every college and university. While commitments to generating knowledge and serving our various constituencies also are essential, our institutions would not exist without students.

Reports such as the Spellings Commission study¹ cite the importance of technology in strengthening academic programs, increasing access, and providing new and improved models for curriculum development and delivery. Indeed, instructional technology has never had more widespread acceptance or stronger national interest than it does now. Institutions are organizing (or reorganizing) their academic technology support units to better serve their respective campus communities. Colleges and universities are investing large sums of money on instructional technologies and staff to support them. Faculty members are investigating relevant pedagogies and deploying new instruc-

tional strategies, from blogs and wikis to podcasting and virtual worlds.

At the campus level, the infrastructure for supporting learning technologies has undergone a significant transformation over the past couple of decades, particularly since the introduction of Internet-based instructional technologies. As Peter DeBlois explained,

Just as technology-enhanced teaching and learning has evolved...so has support for instructional technology evolved at our institutions. The changing rubric of librarian, media specialist, information resource analyst, faculty computing consultant, instructional technologist, and instructional designer has signaled the advent of a major branch of the IT profession, with unique service, management, and leadership challenges.²

While recognition of academic technology as “a major branch of the IT profession” with its own unique attributes, requirements, and chal-

Terminology

This article employs the following terminology:

- *Instructional technology* refers to the field, function, or focus of the service.
- *Academic technology* refers to the campus organization(s) providing the services.
- *Instructional technologists* refer to the professional staff members who provide the services.

This is for convenience. We see no practical difference between the terms “instructional” and “academic” technology, although we acknowledge that newer digital tools are commonly described as academic technologies. “Instructional technology” provides an umbrella for the various names used to describe the practice of providing instructional technology support across campuses. We recognize that the terminology will vary from campus to campus because institutions use different names for their academic technology units.

Challenges for leadership is encouraging, the implementation of this concept has yet to emerge on most campuses. The fragmentation of academic technology support services among multiple service providers (for example, traditional media centers, IT and academic computing organizations, libraries, faculty development centers, distance education/continuing education offices, academic unit-based centers, and specialty centers that focus on video-based or online distance learning) may actually have resulted in a diffusion of leadership for academic technology. How many colleges and universities even

have a senior-level position dedicated exclusively to providing vision, leadership, direction, and accountability for the technologies and services supporting teaching and learning?

According to the EDUCAUSE fiscal year 2005 Core Data Service (CDS) report,³ 71 percent of the responding IT organizations provided instructional technology services, and 73 percent provided academic computing services. Yet, an informal and unscientific review of institutional org charts available on the web suggests that only about half of our IT organizations have senior, director-level positions that report to the CIO and are specifically and exclusively tasked with supporting academic technology. Likewise, many IT organizations do not refer to academic support in their mission statements.

When core instructional technology functions such as those addressing instructional improvement and curriculum development are considered, the absence of centralized leadership for these services becomes even more evident. In fall 2005, we conducted a national survey to explore the organization of academic technology services on a campus-wide basis. We randomly selected 150 U.S. higher education institutions,⁴ with 50 institutions from each of the then-Carnegie categories of Doctorate-granting Institutions, Master's Colleges and Universities, and Baccalaureate Colleges. We looked at each institution's academic technology units and the administrative level of the units' leadership. Through careful examination of campus websites and follow-up e-mail exchanges, we attempted to identify a single individual with overall responsibility for instructional technology at each institution. The individual had to meet three fairly minimal criteria:

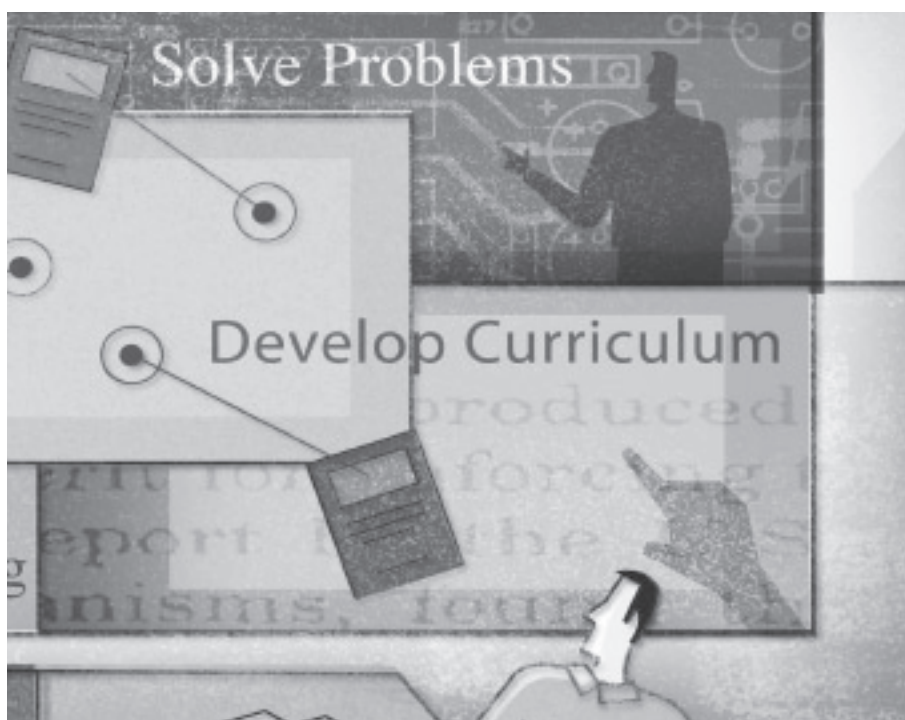
1. As a common denominator for the scope of service responsibilities, administered both classroom support and online learning support on a campus-wide basis (both physical and virtual learning environments); also administered some form of instructional devel-

opment or faculty development/training services.

2. Was dedicated to academic technology and did not have significant responsibilities in other areas of IT, such as staff workstations, non-academic software licensing, the institutional website, and the IT help desk.
3. Was no lower than two administrative echelons below the vice president in the reporting chain, or was no lower than the administrative level of department heads reporting directly to the CIO if the CIO was at the VP level.

The findings were stunning. A position meeting these criteria, with leadership responsibility for these three fundamental instructional technology service areas, could be identified at only 10 percent (15) of the 150 institutions we studied. At the other 90 percent, these services evidently were not viewed as integrated instructional technology functions requiring leadership and oversight by a professional who operated at the strategic level of the institution's administration, or who even reported to an administrator at the strategic level. Clearly, despite the rapid growth in technology use by faculty and students and the multitude of reports and other publications hailing the virtues of instructional technology, centralizing leadership for these service areas under a single senior manager has not been a priority.

A university would never permit the library's reference, circulation, and interlibrary loan departments to operate as independent campus entities without a library director or dean. Coaches would not report to different campus administrators instead of an athletic director. We organize our academic departments, student affairs offices, and even physical plant departments under leaders who are experienced members of their respective professions and accountable for the performance of these organizations in support of institutional goals. Yet, according to our survey, about 9 of every 10 campuses have multiple aca-



demographic technology support service units without a common academic technology administrator; have a single ATSS unit at a lower administrative echelon; or have no ATSS units at all.

We propose that each campus should have a *senior academic technology officer* (SATO) to provide strategic leadership and direction for academic technology applications, initiatives, and support services across the broad spectrum of instructional technology functions; provide leadership in planning and policy related to curriculum development, e-learning, and other instructional technology initiatives that facilitate achievement of the institution's strategic goals; and build partnerships among campus academic support units to work collaboratively toward achievement of institutional goals that can be addressed through instructional technology. The SATO should assume an advocacy role on behalf of faculty and students in campus matters related to teaching and learning with technology, and work closely with academic units to ensure that their needs are incorporated into academic technology plans. The position should also provide overall leadership and direction for the academic technology support staff to ensure the most effective use of human

resources, with a strong emphasis on quality service.

What Is Instructional Technology?

The Spellings Commission report specifically recommended developing "new pedagogies, curricula, and technologies to improve learning," establishing "course redesign programs using technology-based, learner-centered principles," and implementing "new models of curriculum development and delivery."⁵ As the 2005 CDS survey found, about 71 percent of our IT organizations provide instructional technology services, but IT support in these areas is rare. As a brief review of the history and definitions indicates, services such as these lie at the heart of instructional technology and of what a SATO should oversee.

The audiovisual movement can be traced back to the illustrated textbooks of Johann Comenius in the 1650s, and films and lantern slides first appeared as learning tools in the late 1800s. Instructional technology historians, however, date the field as emerging in the 1920s with the "visual instruction" era.⁶ With the development of audio recording technologies in the following two decades, the field

became "audiovisual instruction."

During the mid-20th century, the audiovisual field was strongly influenced by emerging theories of learning, communication, and systems. The field became "audiovisual communications," and by the late 1960s, "instructional technology."⁷ These new theoretical foundations were reflected in a series of landmark definitions of instructional technology that appeared between 1969 and 1977. The first of these was a set of two definitions developed by the President's Commission on Instructional Technology, a blue-ribbon panel of educators and public servants appointed by President Nixon in 1969 and chaired by Sterling McMurrin, the highly-respected dean of the graduate school at the University of Utah. The first addressed the traditional concept of "media":

In the more familiar sense, it means that media born of the communications revolution which can be used for instructional purposes alongside of the teacher, textbook and blackboard...⁸

The second proposed an entirely different perspective of instructional technology, one strongly influenced by the new theoretical underpinnings of the field:

Instructional technology is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication and employing a combination of human and non-human resources to bring about more effective instruction.⁹

The commission's second definition represented what became known as the "systems approach" to instruction and was manifested in the practice of instructional development. Instructional development and faculty development as services and fields of study both emerged in the late 1960s and early 1970s (for different reasons), but



they were closely related. Both provided processes that led to instructional improvement.

A third definition was published in 1970 by Ken Silber, an early proponent of defining the field within the Association for Educational Communications and Technology (AECT):

Instructional Technology is the Development (Research, Design, Production, Evaluation, Support-Supply, Utilization) of Instructional Systems Components (Messages, People, Materials, Devices, Techniques, Settings) and the Management of that development (Organization, Personnel) in a systematic manner with the goal of solving educational problems.¹⁰

The Silber definition is particularly useful because it identified both the processes involved in instructional technology (research, design, production, evaluation, support-supply, and utilization) and the components of an instructional system (messages, people, materials, devices, techniques, and settings). Although the tools and learn-

ing environments have evolved, these processes and components essentially remain the focus of an instructional technologist's work today.

Silber subsequently became chair of AECT's Definition and Terminology Committee, which published its own definition of instructional technology in 1977:

[Instructional] technology is a complex, integrated process involving people, procedures, ideas, devices and organization, for analyzing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of human learning.¹¹

This definition was updated by AECT in 1994 and again in 2004. The 2004 revision was more concise than the 1977 version and introduced the matter of ethical practice:

[Instructional] technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and

managing appropriate technological processes and resources.¹²

Definitions of instructional technology emphasize the basic processes of teaching and learning and the instructional contexts in which information is used. They also encompass the information itself and how it is designed and developed to maximize its educational effectiveness, using procedures grounded in theories of learning and communication. Instructional technology is concerned with learning outcomes and the manner in which information media help students achieve those outcomes. It is a broad field that has the potential to touch virtually every element of teaching and learning at every higher education institution.

Thus, the scope of an instructional technologist's work extends well beyond developing learning objects and training faculty to use course management systems. The interests of an instructional technologist include

- the development, enhancement, maintenance, use, and assessment of learning environments (both physical and virtual);
- the planning and development of curricula (with or without the use of technology products);
- the training of faculty in all aspects of pedagogy;
- research and development related to the solution of instructional problems;
- the assessment of learning; and
- course and program evaluation.

Someone at the senior administrative level needs to provide leadership and direction for those who perform these functions.

This, then, is the context for a SATO. Those who administer the wide range of instructional technology services and initiatives for a higher education institution should have a broad understanding of the evolution of and theoretical framework for instructional technology and understand how all these components should fit together and work as a system.

The SATO as Academic Technology Leader

Leadership is crucial for success in any venture. As early as 1990, Peter Galbraith and his colleagues¹³ observed that a lack of leadership hindered the integration of technology into the teaching and learning process in educational institutions. In 2000, Tony Bates advocated that colleges and universities create a position of “associate vice president with the overall responsibility for academic technology issues.”¹⁴ Following his visit to several colleges and universities to study how technology was deployed, Bates further noted that of all the organizations he visited,

...where technology was being used successfully for teaching, strong leadership was a critical factor. Without leadership and a strong sense of support for change in an organization, the barriers of inertia will be too great.¹⁵

Following Bates’s recommendation, a SATO at larger institutions could be an associate vice president, while smaller institutions could position the role as an executive director under a CIO, as suggested by Carrie Regenstein¹⁶ for other areas of IT. The rank and visibility of the position give clear indicators to the academic community of the relative importance given to instructional technology in the institution’s value system. As academic technology leader, the SATO should be positioned to work as a peer with other top institutional administrators on issues such as strategic planning, budgeting, institutional assessment, academic program development and renovation, and change authorization and management.

Roles and Responsibilities of the SATO

The roles and responsibilities of an academic technology administrator can be characterized as tactical or strategic. Tactical responsibilities are those that relate to the day-to-day management of service areas that fall under the position. Strategic functions are concerned with improving the institution’s aca-

demetic programs over the long term and positioning academic technology services to have the maximum impact on those programs. At the SATO level, particularly on larger campuses, strategic functions should comprise the vast majority of the job description, with tactical functions delegated to managers within the SATO’s organization.

The following list contains examples of typical strategic-level responsibilities of SATO positions. Many of these functions were adapted from actual SATO-type position announcements posted during the past few years. The role of a SATO as a visionary, leader, director, planner, facilitator, collaborator, catalyst, advocate, and evangelist should be evident.

- Functions as the senior academic technology officer; provides strategic leadership and direction for all campus academic technology applications, initiatives, and support services.
- Provides leadership in operational and strategic planning and policy related to curriculum development, e-learning, and instructional technology initiatives that facilitate achievement of the university’s strategic goals; ensures that academic technology issues and requirements are incorporated into the university’s overall technology plan.
- Promotes the use of technology in support of the university’s educational and research missions.
- Builds partnerships with the faculty senate, library, information technology, faculty development center, distance/continuing education center, and other campus areas as appropriate to work collaboratively toward institutional strategic goals that can be addressed by instructional technology.
- Serves as a catalyst for curriculum improvement and change across the university by building and sustaining relationships with faculty, chairs, and deans around strategies and programming that facilitate curricular innovation.
- Advocates on behalf of faculty and

students in campus matters related to teaching and learning with technology.

- Provides overall leadership and direction for academic technology support staff, ensuring efficient and effective utilization of human resources with a strong emphasis on quality service.
- Provides fiscal/budgetary oversight for academic technology.
- Works with academic units to identify technology competency levels for faculty; develops training programs to help faculty achieve those competencies.
- Works closely with faculty and the administration in identifying and soliciting external funding sources for academic technology initiatives.

SATO Status and Qualifications

We have reviewed instructional technology position announcements on an ongoing basis since the early 1990s and have found that postings for senior academic technology leadership positions frequently require leadership and management skills, in-depth knowledge and experience in instructional technology, the ability to manage change, and a terminal degree consistent with expectations for faculty at the respective institutions. Typical position qualifications for a SATO, as follows, were adapted from actual position announcements.

- Demonstrated record of innovation and success in providing academic technology services aligned with campus goals, with extensive knowledge of the activities, processes, resources, and technologies involved in academic technology management and leadership.
- Clear and balanced vision of how technology can be used to support teaching and learning.
- A strong understanding of the historical and theoretical foundations and processes of instructional technology (including instructional development), college teaching, faculty development, and distance education.

- Intimate familiarity with both physical (classroom) and virtual (online) learning environments, with successful teaching experience in each.
- Demonstrated record of success in developing and maintaining strong working relationships with faculty, students, staff (particularly academic technology staff), administrators, and both internal and external partners.
- Demonstrated ability to build consensus and positive relationships based on trust, predictability, and communication.
- An effective and collaborative leadership style that incorporates organizational, analytical, and decision-making skills.
- Strong change-management, project-management, and team-building skills.
- Strong oral and written communication skills, with a record of success in developing planning documents, proposals, budget request justifications, and other forms of communication with senior administration and faculty.
- Extensive knowledge of best practices in technology applications in teaching and learning and in the management and leadership of academic technology support services.
- Extensive knowledge of trends and future directions of technology in the learning environment.
- Demonstrated record of commitment to ongoing professional development on the part of self, academic technology staff, faculty, and other campus constituents.
- An earned doctorate, preferably in instructional technology or a closely-related field, and the academic credentials appropriate for a faculty appointment at the rank of associate or full professor.

We agree with the final qualification—that the SATO should have an appropriate faculty rank along with the academic credentials and record of scholarship needed for faculty to respect the SATO as a peer. The SATO must be perceived by faculty not as a

“techie” but as a colleague. The position should be tenured or tenure-track, with full expectations for promotion and tenure commensurate with those of other non-teaching faculty, such as professional librarians. In that regard, library faculty provide a good model and precedent for faculty status for the SATO position. Teaching courses periodically, as the workload permits, would enable the SATO to experience both physical and virtual classroom environments from the viewpoint of rank-and-file professors.

The CIO as SATO

Should the CIO be the SATO? Perhaps this would work at smaller institutions where administrators sometimes wear multiple hats. At larger colleges and universities, however, this would be the equivalent of the president also assuming the role of vice president for academic affairs while other functional areas of the university have their own vice presidents. Certainly the CIO needs to be closely involved with teaching and learning, but academic technology merits its own department head at the same echelon and compensation level as other IT department heads reporting directly to the CIO.

Dedicated to the academic mission of the institution, a SATO focuses on instructional technology and academic transformation. The SATO’s attention is not fragmented by issues such as IT funding, security, ERP systems, access management, and disaster recovery, which were identified in the December 2006 EDUCAUSE Current Issues Survey as the five most important IT concerns faced by CIOs.¹⁷

While many professional interests are shared by SATOs and CIOs, many others are unique. When positioned within information technology as a chief associate of the CIO, a SATO brings unique perspectives, helping inform the CIO prior to making decisions related to academic support and providing a bridge to the academic community.

Shared professional interests of the CIO and SATO follow, along with lists of issues primarily of interest to CIOs

and issues relevant primarily to SATOs. Items followed by an asterisk (*) in all three lists were adapted from Raymond von Dran’s list of content areas for IT academic programs.¹⁸ Notably, von Dran’s list included none of the professional interests in the academic study areas primarily of relevance to SATOs.

Shared Professional Interests

Professional interests shared by CIOs and SATOs include:

- Higher education leadership
- Information technology*
- Digital convergence*
- Digital libraries*
- Information retrieval*
- Information security*
- Usability*
- Human-computer interaction*
- Visualization*
- Digital literacy*
- Collaborative behaviors in virtual communities*
- Knowledge representation*
- User interface design and evaluation*
- Enterprise resource planning (academic)*
- Information systems design*
- Knowledge management*
- Project management*
- IT leadership*
- Change management*
- Intellectual property management*
- Policy, regulation, and law of the Internet*
- Technology standardization*
- Technology planning
- Current trends and issues

CIO Interests

Areas of interest primarily to CIOs are:

- Emerging network technology*
- Natural language processing*
- Information extraction*
- Data mining*
- Information systems*
- E-commerce*
- E-government*
- Enterprise resource planning (non-academic)*
- Network management*
- Distribution of public information*

- Economics of information*
- Electronic markets*
- Network economics*
- Public information policy*

SATO Interests

Areas of interest primarily to SATOs are:

- Theory and practice of instructional technology
- Theory and practice of distance education
- Instructional design and development
- College teaching methods and student assessment
- Approaches to instructional improvement
- Academic technology management
- Faculty professional development
- Assessment in higher education
- Program evaluation
- Management of e-learning
- Learning object development and management
- Administration of distance education
- Learning space design and management
- Instructional problem solving

Administrative Locus of the SATO

Academic technology leadership should not be a part-time job or assigned to individuals viewed by faculty and administrators as “marginal players with minor responsibilities, dubious academic credentials, and work which is peripheral to the mainstream of academic priorities.”¹⁹ This assertion is not in any way intended to denigrate those who manage academic technology support services from positions in lower administrative levels. However, people in these positions often function as assistant directors to what should be director-level (SATO) positions that were never conceived and operationalized.

We do not intend to debate the merits of various reporting relationships for the SATO. (Of the 15 SATO positions identified in our fall 2005 study, three reported directly to the chief academic officer or immediate subordinate other

than the CIO; the remaining 12 were organized as part of IT.) The success of any reporting relationship depends heavily on the individuals involved and their personal priorities. The situation will vary from one campus to another and from one administrator to another within the same institution. In determining the administrative locus for the SATO, the following questions should be asked:

- Is this reporting structure likely to result in the strongest possible academic technology support for faculty and students, or is it mostly for administrative convenience? Who are the primary beneficiaries? (If the answer is not the faculty and students, other reporting relationships should be considered.)
- Is the senior person to whom the SATO position reports willing to serve as an advocate for academic technology and look after the best interests of the faculty and students related to academic technology at the highest levels of the administration? Is this someone who believes in the mission of the SATO and academic technology in general and is in the best possible position to support it?
- Does the senior position to which the SATO reports have a legitimate interest in the success of academic technology, or are strong competing interests present? Is the possibility of a windfall of funding and position lines if academic technology support were downsized or abolished motivation for this person to seek administrative responsibility for academic technology? In other words, would this reporting senior person's primary interests benefit if academic technology support were significantly reduced or eliminated?
- In this organizational structure, will the SATO be viewed by senior faculty and administrators as a peer and collaborator, a “player” in carrying out the academic mission of the institution, or will the SATO be seen as a “techie” with marginal credibility and importance? Will they even know who the SATO is?

- Will this reporting structure enhance the image of academic technology units subordinate to the SATO as places where faculty can get support and informed assistance with their teaching?

Campus leadership for academic technology should never sit lower than one echelon below the CIO or two levels below the vice president for academic affairs if the CIO is not at the VP level. Regardless of the SATO's position within the campus organization chart, the SATO must work closely with Academic Affairs in serving the institution's instructional mission. The proximity to Academic Affairs is important in giving faculty some sense of belonging or ownership, as they are the primary recipients of academic technology services. The SATO should also be free to forge partnerships with other unit directors engaged in academic support.

The Promise of Campus Partnerships

Academic technology's natural campus partners lie outside the IT organization. From the perspective of its theoretical and historical foundations as well as its primary mission of instructional support, academic technology has more in common with the library, faculty development, and distance or continuing education than with IT departments supporting campus telecommunications, networks, and administrative computing. For years, the Teaching and Learning with Technology (TLT) Group²⁰ has advocated such partnerships in the interests of promoting collaborative change and more effective integration of technology into teaching and learning.

For example, a partnership among academic support organizations could focus on themes such as:

- improving access to resources for scholarship,
- facilitating communities of learners,
- assessing learning (especially in a distributed learning environment),
- coordinating professional development

- programming for faculty,
- planning for academic technology and distance learning,
- identifying and promoting best practices related to teaching and learning, particularly technology-based learning, and
- aligning technology with pedagogy.

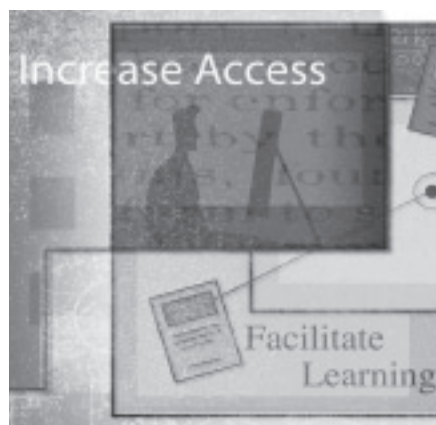
Strategic goals for the collaborative could include the following:

- Facilitate the development of the university as a learning organization.
- Address organizational issues that serve as barriers to effective teaching and learning.
- Empower the faculty to use innovative instructional methods.
- Improve the institution's use of assessment practices for enhancement of teaching and learning.
- Celebrate the achievements of the faculty in teaching, research, and service.

A SATO with a broad understanding of and extensive experience with both process- and product-related missions of instructional technology is in a unique position to provide leadership and strategic direction to such partnerships. Our experience has been that collaboratives of this nature depend heavily on a shared vision and commitment among the group's leaders and a strong, supportive climate in senior administration. Campus politics, territorialism, and resistance to out-of-the-box thinking can severely threaten the success of the partnership.

Final Thoughts

The need for a SATO-type position to lead efforts in directing instructional technology adoption, organization of service and support, administration of the support unit, management of resources, and integration of the teaching and learning process in higher education cannot be overemphasized. A major reason for the paucity of SATO-type positions is the failure of the instructional technology community to adequately prepare and nurture its own members for positions of academic



technology leadership in higher education. The fragmentation of instructional technology services on campus, which was confirmed in the SATO survey we conducted in 2005, has not helped in the development of strategic leadership for academic technology. While campus-wide units supporting academic technology services have been around for nearly a century, and while we've had clear definitions of instructional technology since 1970, few institutions have established comprehensive organizational structures addressing the breadth of services that instructional technology offers. Nor have they continued to evolve those structures to accommodate technological and pedagogical change.

In the 1960s and 1970s, as academic computing began to appear on campus, directors of audiovisual and media centers collectively failed to recognize its significance and the characteristics that clearly defined academic computing as instructional technology. They rejected academic computing as a service area for their own centers and viewed administrative computing units that did embrace these services as competitors rather than partners. Consequently, support for computer-based learning and eventually online learning and virtual learning environments most often evolved in independent academic computing or IT organizations, while responsibility for the classroom/physical learning environment and video-based distance learning support remained with media centers. Even today, after reorganizations on many campuses have brought media services

units into information technology, these service areas typically remain separate, with separate managers. We saw this pattern over and over as we reviewed campus websites looking for SATO positions.

The first organized units supporting technology-based learning were established on college campuses early in the 1900s, but the managers of these units struggled without strong national leadership for nearly a century. In EDUCAUSE, we now have the national leadership in place for the profession as a whole. The next steps must come at the campus level—elevating the status of academic technology leaders within educational organizations. A SATO can provide strong, well-informed, dedicated leadership in facilitating the application of technology to meet an institution's academic goals. The position also helps create a sense of ownership for faculty, who see an organizational position and a range of services dedicated to supporting them in their professional roles. Furthermore, a SATO position could provide the leadership and direction needed to help eliminate or minimize the all-too-frequent reorganization or constant restructuring of academic technology units in recent years. The existence of SATO positions also should lead to the development of a robust community of practice for SATO position holders and enhance opportunities for collaboration. *e*

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