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Multimedia Services: Strategic Assets for Institutional Success

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Overview

Institutions of higher education typically offer a variety of services and resources related to instructional technology, multimedia equipment for individual use, event support, Web-based media development, and general audio and video production. These same multimedia services, however, are understood differently, structured differently, and resourced differently on nearly every campus.

As audio, video, and instructional technologies converge, and as faculty and student expectations for these resources escalate, multimedia services are emerging as the next major arena in which campus leaders will find their way to standard practices that leverage these strategic assets for institutional success.

This research bulletin surveys the chief components of contemporary multimedia services in colleges and universities, and it describes some emerging practices for sustaining such services in an increasingly digital and user-centered world.

Highlights of Multimedia Services in Academe

Multimedia services are undergoing a far-reaching transformation even as they become increasingly central to institutional mission and success. The range of services and technologies demanded for courses, university events, Web publishing, general audio and video needs, and even individual use by students and faculty is increasingly rich and diverse. Meanwhile, the digital revolution has unified the underlying technologies for these services and resources, engendering extensive blurring if not outright elimination of expertise and service silos among many of these support arenas.

The reality for multimedia services at most institutions, however, is a cluster of services and resources with increasing technological affinity that are impeded from comparable operational integration by the inertia of parent organizations. Multimedia services, in other words, are fairly well understood as a federation of services and resources, but practitioners have yet to demonstrate self-awareness as a community of practice sufficient to explore and share best practices for structuring, resourcing, and planning multimedia services.

Some new approaches to the delivery of multimedia services, though, have recently emerged from a combination of persistent technological change, increasing flexibility of organizations and personnel, and increased sensitivity of institutions to learning outcomes, return on investments, and customer satisfaction.

As digital technologies for systems integration, disintermediation of services, and enhanced teaching-learning experiences have proliferated, new combinations and concentrations of multimedia services have coalesced. For some years now, technology organizations have been rethinking the affinities among (and administrative *loci* of) operational units related to multimedia services. Some alternative approaches have been achieved through organizational reconfiguration, some through user interfaces that

simplify complex service environments, and others by way of unique combinations of organizational change and expert service provision enhanced by improved communication processes.

To this mix of technological and organizational change can be added convergence of another sort that is increasing motivation to undertake new approaches to multimedia services. The rising expectations of students, faculty, and other constituents are expressions of a changing, more demanding customer service culture that expects

- state-of-the-art media-development resources, instructional tools, and support services;
- 24 x 7 access to multimedia services and resources, including convenient access to assistance at time and place of need; and
- elimination of intermediate service layers when ordering and seeking support.

Add to this an increasing institutional focus on assessment, learning outcomes, and evidence of worthwhile returns on substantial investments, and it becomes clear that the stakes are rising for those who provide these services to do so more effectively, efficiently, and in ways that meet the needs of students and faculty as defined by students and faculty themselves.

While the technological advances and customer expectations around multimedia services are well ahead of institutional accommodation of these technologies, we are now beginning to see new *exempla*—exemplary good practices—for both small and large campuses that can accelerate this transition for others when adapted to their local needs. Long perceived as dysfunctional on many campuses, multimedia services (especially classroom technologies) are now moving front-and-center as critical strategic resources for teaching-learning initiatives, distance learning strategies, and student recruitment and retention planning.

This robust combination of maturing technologies, sophisticated delivery systems, heightened desire to make multimedia and classroom technologies work effectively, and organizations and personnel more accustomed to change is a powerful impetus for transformation in how higher education enables multimedia services. Equally significant is the recent and rapid expansion of interest among multimedia services leaders in service system delivery models, assessment of learning outcomes, and insinuation of multimedia services into larger university strategic planning and priority-setting processes.

Elements of Multimedia Services

From classroom design to media-rich public events, contemporary multimedia services comprise six broad categories:

- Audio and video production
- Classroom, instructional, and presentation technologies

- Collaboration tools
- Event production and support
- Design, repair, and maintenance of multimedia systems
- Training and instruction

Audio and video production support typically includes such recording and editing services as preproduction planning and scripting, studio and location recording, nonlinear editing systems, and duplication and transfer of media. The campus cable TV infrastructure can be found under this rubric as well. Newer Web-based services include podcasting, Web streaming, and digital archiving. A major challenge for service providers can be finding balance in the transition from older to newer technologies, especially in smaller institutions with established staff, concentrations of expertise, and equipment that does not readily adapt to changing user expectations or new technology environments.

Classroom and presentation technologies form the most amorphous of all the categories of multimedia services—and arguably are the most consistently difficult to support well. Presentation slides, digital video, simulations, and animation clips are indicative of one cluster of needs. Collaborative network-based workspaces, peer-to-peer exchanges, and online virtual worlds are another. Typical “smart” classrooms include networked projection, document cameras, instructors’ podiums, custom software, and integrated control systems, but such spaces are only one point on a long continuum of enhanced learning spaces that extends into sophisticated learning laboratories, student response systems, and interactive learning systems. All such spaces and technologies warrant viable human support infrastructures, ranging from space design and installation to personalized instruction for a learning management system or instructional design consultation for effective integration of technology into pedagogy. Often overlooked in multimedia technology planning is an adequate equipment inventory and check-out for individual use for instructional purposes by students and faculty—for example, laptop computers, digital cameras, podcast recorders, camcorders, computer projectors, and DVD players.

Collaboration tools typically involve the use of audio and video for interactive purposes, such as Web conferencing, videoconferencing, and “Webinars” that are delivered over a variety of standards-based connections (including ISDN, IP, SIP, and H.323). Using such tools, participants gather “in sync” from disparate locations for discussion and to review materials. In this multimedia service setting, a major challenge for service providers is ensuring robust throughput and synchronous network connectivity within and across institutions for point-to-point and multipoint programs. Assuring the reliability of a service instance can also be challenging as providers work cooperatively with an institution’s network engineers to maintain network security standards.

Event support is perhaps the easiest to define—whatever technology and services are needed for university events—but often is the most exasperating to support, given the complexity of technology needs, the often short windows of time for setup and take-

down, and the high visibility of a technical failure or drop in service. Audio reinforcement, presentation projection, Web site display, and video playback are the most common components. Public events can push these resources to extremes while reaching still more deeply into the multimedia services tool kit for Webcasting, podcasting, and other higher-end services.

Design, repair, and maintenance of multimedia systems can include the life cycle of a learning space, from initial systems design and deployment to hardware maintenance and replacement, software licensing and upgrades, and technology exit strategies. Any individual element is easily overlooked. When that happens, such lapses contribute quickly to the perception of a multimedia services operation that is dysfunctional, especially in the instance of heavily used classrooms. Institutions that overlook the responsibilities of maintaining a proper inventory and promptly repairing equipment for individual use may encounter negative perceptions toward the unit and the institution's deployment of technology generally. Multiyear planning for the support of multimedia systems, general maintenance of the installed base, lifecycle planning, and use of network diagnostics and remote support all are important tools for the delivery of effective multimedia services.

Finally, training and instruction in the many systems and resources described above is critical, yet instruction for independent use is often a casualty of limited institutional investment in multimedia services. A variation on an old technology adage—"fast, good, or cheap: choose two!"—all too often forces multimedia services operations to choose among deploying, sustaining, or training. Offering a range of instruction opportunities is vital to an effective multimedia services program—including instruction at point and time of use, in scheduled topical workshops, and through course-integrated or free-standing courses on video production, creating streaming media, digital portfolios, and the like. Course-integrated instruction for students at the time a class project is launched, and association of instructional technology workshops and consultations with a faculty development program, are hallmarks of an effective multimedia program.

Some Exemplary Practices

Approaches to multimedia services, challenges encountered, and responses to these challenges seem to vary significantly by size of institution. Following are the recent experiences of three smaller and two larger institutions that collectively provide a range of practices from which an institution might draw and adapt to local needs. The core elements of these practices might well yield still more innovative and powerful models from the next cadre of multimedia services leaders.

The experiences of Carleton College, Pacific Lutheran University (PLU), and Linfield College suggest that rethinking multimedia services at smaller institutions frequently entails integration of services and organizations in nontraditional ways. Experiences from Indiana University and George Mason University suggest that rethinking multimedia services at larger institutions often involves deepening expertise, increasing the range of services offered, and improving communication among operational units across a highly complex service landscape. A third path, being explored separately by Stanford

University and PLU, suggests the future of multimedia services may be user-directed interfaces that enable self-service ordering of space and equipment, direct acquisition of tools and resources, and connections with persons and agencies in ways that render organizational structures and physical location less critical to the successful provision of service.

In 2005, Carleton College formed a consolidated multimedia services unit—Presentation, Events, and Production Support (PEPS)—following extended study by and recommendations from a task force of staff, faculty, and administrators. The task force was formed chiefly to address the problems of an inadequate media services program and an aging installed base of technology in classrooms. PEPS, working closely with but separate from the Web development group, is now responsible for classroom and presentation technology, equipment for individual use, audio and video support for events, multimedia training, a video editing lab, special production and development services, and editing and duplication services. An important point of departure for the task force, which was populated with a broad base of participation for articulating problems and finding solutions, was a comprehensive needs assessment that generated valuable data and galvanized the task force's vision for success.

PLU's Information & Technology Services (I&TS) is a merged information services organization that comprises central IT, administrative and academic computing, library, and multimedia. In 2003, I&TS restructured portions of its organization to better align with changing instructional technology needs. To focus more on teaching and learning with technology, the Digital Media Center was created with lead responsibility for the learning management system (now Sakai), instructional technology, Web development initiatives, two multimedia labs, and (subsequently) shared leadership for the campus-wide Web content management system. To focus more on the enrichment and support of learning spaces, separate audio and TV services were folded into a new organization called Multimedia Services, which has lead responsibility for learning spaces, event support, a circulating equipment inventory, and a broad range of audio and video production services. Multimedia Services at PLU relies heavily on a charge-for-services model for nonacademic events that underwrites much of the cost of equipping and sustaining technologically current learning spaces.

Linfield College's Educational Media Services has evolved as part of the library rather than the central IT organization, yet it includes all the major components of multimedia services: audio and video production; event, classroom, and presentation technologies; and instructional support. An instructional designer was recently added to the mix to deepen support for teaching with technology in a new instructional facility. The association of multimedia services within the library enables strong connections between the library, the instructional mission of the college, and multimedia services.

Indiana University supports four major units related to multimedia and instructional technologies: Classroom Technology Services (including event audio reinforcement), Media Design and Production, Data Management Support, and Academic and Faculty Services. These agencies in turn serve five campuses, working with teaching and learning technology centers and consultants on each campus. Careful to sustain

capacity that fluctuates with varying demand, Indiana maintains a fee-based service model whereby most projects are planned at the outset of the fiscal year and in-house staff are supplemented by a pool of project consultants available for hire. As technology, expectations, and opportunities have changed, so have Indiana's service units and the volume of fee-based services. The principal challenge within the Indiana model is communication among multiple agencies, and in turn across five campuses and among multiple campus partners.

George Mason University's Division of Instructional Technology supports multimedia and instructional technology among three units: Learning Support Services (LSS), Classroom Technologies (CT), and a newly formed unit, Educational Media Services (EdMS). These units support multimedia and instructional technology across Mason's four regional campuses. EdMS was formed from a television broadcast infrastructure and multiple collaborative and instructional technologies units. At the same time, CT was restructured and re-charged to deliver consistent services across all Mason campuses. Events policies and fee schedules were created by both units; student multimedia and virtual world interest groups were formed to cultivate informal access to additional expertise; and equipment checkout was consolidated to ensure broad and timely access to teaching, learning, and event resources. Both EdMS and CT work closely with LSS, where responsibility for faculty and student development and training resides. LSS facilities also provide the venue for university engagement through formal training and informal discussions and discussion groups. Formation of EdMS and reorganization of CT arose from a larger reorganization initiated by IT leadership, for which the goals were consolidation of resources, optimal use of individual skill sets, increased service capacity, reduction of service points, and communication of services to the academic community. This same leadership believes that key tools for communication among service providers and between providers and their constituents are documentation of processes, service level agreements with customers and partners, and clear statements of event policies.

Other universities are exploring technology overlays—self-service interfaces—that enable individuals to move as much as possible beyond physical service points, the vicissitudes of multiple service centers, and the overall complexity of dealing with equipment inventories, fee structures, and service policies.

Stanford University is in the initial phase of working with a vendor to develop a self-directed, Web-based interface for some related multimedia services and resources. The project will address both library and course needs, especially a library digital media interface, integration with Stanford's Sakai course management system, and workflow for media creation. At this writing, Stanford has installed a server and is developing software for streaming and casting audio and video resources.

PLU, on the other hand, is in the advanced stage of developing a Web-based self-service interface for transactions common to mediated service points. This system allows the user to review images and equipment specifications for learning and meeting spaces of interest; ascertain equipment availability and reserve desired equipment; and arrange billing, check the status of an order, and communicate with service providers

directly for feedback or problem resolution. When integrated with an existing Conferences & Events online space-reservation and event-planning interface associated with the PLU campus calendaring system, this new system will markedly reduce the number of service connections needed for academic and administrative events.

It might be some time before the direction and value of the Stanford and PLU projects are fully known and appreciated, but even now they do indicate where the future of academic multimedia services is likely going—toward user-directed interfaces that enable self-service arrangements for space and equipment, direct acquisition of tools and resources, and connections with service providers in ways that transcend organization and physical location.

What It Means to Higher Education

For many years, multimedia services practitioners have sustained a community of practice around evolving technologies, design of learning spaces, and related operational matters. Only now are multimedia services becoming understood as strategic university assets with considerable influence on learning outcomes, student recruitment and retention, and faculty pedagogy, warranting a broad base of constituent engagement and strategic alignment with university priorities.

Yet multimedia services continue to search for place and identity within institutions of higher education. That the percentage of multimedia services units reporting to chief information officers has been trending upward in recent years—48.3 percent in 2002 and 58.3 percent in 2005 (Hawkins, Rudy, & Madsen, 2002; Hawkins & Rudy, 2005)—may indicate increasing visibility and importance to university executive leadership. The paucity of publications and conference presentations, however, on the administrative, planning, assessment, or financial dimensions of multimedia services reveals that the higher education community continues to think about multimedia services primarily in terms of technology and learning space design.

All the same, technological advances, especially digital convergence of audio, video, and instructional technologies, are enabling new formulations for services related to multimedia and instructional technology. In time, these experiences will prompt more reflective discussion of the organization and leadership dimensions of multimedia services as we are coming to understand them.

Recent innovations in approaches to organizational structure and service-delivery models are in fact allowing us collectively to imagine a future for these services quite different from conventional practices. *Exempla* to explore for local adaptation include:

- Carleton College began with a formal needs assessment and a broad base of participation. This in turn assured campus-wide support for recommendations to create an integrated multimedia services unit.
- PLU merged and reconfigured multiple operational units to capitalize on the digital convergence of audio and video. This restructuring created additional focus for learning spaces and for instructional technologies.

- Linfield College places multimedia services within the library organizationally. Both multimedia and the larger library thereby work closely with the technology organization to more closely align all partners with the teaching-learning mission of the college.
- Using multiple service units, a fee-based service model, rigorous annual planning, and effective communication among all parties, Indiana University sustains a highly flexible and scalable model for services to a disparate set of constituencies.
- George Mason University took advantage of a larger IT reorganization to consolidate several operating units that had grown up around specific technologies to create a single, more accessible concentration of related services. These newly structured or created units have in turn proffered mechanisms for improved communication both among themselves and with their chief constituents.

Much anecdotal evidence intuitively confirms why we are moving in these directions. George Mason University and Carleton College, for example, speak of enthusiastic receptions to structural changes and new service synergies by their faculty and students. Generally speaking, however, multimedia services are moving toward integration of services and user-directed service interfaces for the same reasons driving much of the innovation within information and instructional technology in higher education today:

- Demand is increasing for reliable connections with critical resources that are simple and effective.
- These service paths are expected to be available when and where the requesters need them.
- We value engagement with customers and alignment of our resources to their needs and our institutions' priorities.

A major challenge in coming years will be to extrapolate service models and systems that go well beyond those sketched above, to foster a next generation of services that employ new and emerging Web technologies for a still richer range of services. Dimensions of these newer services must include more interactive and user-friendly interfaces, greater adaptation to individual needs, and increased capacity for integration into still larger and more robust user environments.

Toward this end, we will need routinely to emulate the Carleton example of beginning with extensive needs assessments and a broad base of participation in shaping these systems. We will need also to study more rigorously the impact of these services on our students and faculty.

Only in this way do we capitalize on the technological changes, take advantage of the increasing flexibility of organizations and personnel, and respond to the increasing sensitivity of our institutions to learning outcomes, return on investments, and customer satisfaction.

Key Questions to Ask

- Who are the stakeholders in thinking about multimedia services at my university? What are the expressed needs of each stakeholder constituency?
- What are the chief operational components of multimedia services?
- How do service users typically gain access to or use each service?
- How do expertise and number of service providers map to university needs and aspirations?
- Where are these multimedia services located organizationally? Might the university benefit from a different configuration?
- How effective are multimedia services at my university?
- What are the performance measures currently used to gauge the effectiveness of multimedia services on my campus? If changes are made, how will I recognize success?

Where to Learn More

- Carleton College (<http://apps.carleton.edu/campus/peps/services/>)—contact: Andrea Nixon (anixon@carleton.edu), Special Project Manager/IT Strategist
- Consortium of College and University Media Centers (<http://www.ccumc.org>)
- George Mason University (<http://classtech.gmu.edu/>)—contact: Sharon P. Pitt (spitt@gmu.edu), Executive Director/Division of Instructional Technology
- Indiana University (<http://uits.iu.edu/scripts/ose.cgi?amea.ose.help>)—contact: David L. Donaldson (ddonalds@iupui.edu), Group Manager/Media Design and Production
- Linfield College (<http://www.linfield.edu/library/ems/>)—contact: Susan Barnes Whyte (swhyte@linfield.edu), Library Director
- New Media Consortium (<http://www.nmc.org>)
- Pacific Lutheran University (<http://www.plu.edu/library-computing/its/>)—contacts: Kirk Isakson (isaksokl@plu.edu), Director/Multimedia Services, and Layne Nordgren (nordgrle@plu.edu), Director/Digital Media Center
- Stanford University—contact: Lois Brooks (lbrooks@stanford.edu), Director/Academic Computing

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