Developing a Shared Vision for Academic Technology

A Briefing Document for Simmons College

Document Purpose

The following pages are intended to provide planning participants with background information and a shared language for discussions. This document provides readers with vital contextual information that will be needed for informed, active participation in fall 2006 planning sessions.

Note: the authors have made every effort to portray the range of important accomplishments at Simmons, but for the sake of brevity not all initiatives can be highlighted.

Please read this document carefully so that you can bring your comments, reactions, and suggestions to the Shared Academic Technology Vision planning session. If you would prefer to share your thoughts prior to a planning session, write to SATV@simmons.edu.

September 2006

The Charge (from Goal 2 of the 2006 Technology Strategic Plan)

Develop a shared vision that drives the use of academic technologies to enhance and strengthen teaching, learning, research and scholarship.

Desired Outcomes

- We, the Simmons community, know the **direction** we are heading towards regarding the incorporation of technology in pursuit of academic excellence, and have a **common language** to describe Simmons' aspirations and accomplishments.
- We **know and support** Simmons' academic technology priorities.
- **Resource allocation** decisions are made to support the agreed upon priorities.
- There are **clear and shared expectations** for infrastructure (e.g. standard classroom equipment); faculty, staff and student competencies; accountability and rewards.
- **Faculty make informed decisions** regarding when and how to apply technologies to the teaching process to enhance student performance and learning.
- **Students achieve strong information fluency skills** and discipline specific technology competencies that prepare them for their career or advanced studies.
- Access to the appropriate technologies and support **strengthen faculty research and scholarship.**

Laying the Groundwork for a Shared Academic Technology Vision (SATV)

In spring 2006 the Deans' Council and representatives from Technology held a series of meetings to envision the future of technology for teaching, learning, and research at Simmons. The group identified key areas to investigate, but realized that before they could set priorities for planning and make informed decisions they would need to:

- Develop a shared language, because the meanings of terms and concepts associated with educational technology are complex and nuanced;
- Gain an overview of the work that already has taken place within schools and departments at Simmons;
- Learn more about innovations and successful initiatives at other institutions; and
- Understand the costs, both human and financial, associated with undertaking desired initiatives.

This document is designed to provide readers with the foundation needed for active and informed participation in strategic planning for academic technology at Simmons.

Components for a SATV

In reviewing the desired outcomes, the Shared Academic Technology Vision (SATV) Planning Committee identified three strategic components that are fundamental to achieving all desired outcomes. In this briefing document, these three areas are referred to as "Fundamental Components" because it is believed that, even though they will undoubtedly be refined and

modified through the college-wide planning process, they are foundational to all other components and their inclusion in the SATV is necessary as a means to any other ends.

Fundamental Components

a. Student technology fluency
b. Faculty technology fluency
c. Faculty roles and rewards

Potential Priorities

The other 5 components, identified as Potential Priorities, may vary in importance across schools. It is possible that, through the planning process, some of these potential components will be part of one school's plan but not part of others, significantly redefined, or even cut from the SATV plan altogether.

1. Discipline specific technologies
2. Innovation and emerging technologies
3. Learning management system (e.g. WebCT)
4. Online learning and distance education
5. Learning environments inside and outside the classroom

These eight components hold great promise for enhancing teaching, learning, and research at Simmons. However, commitment to any of the components represents a significant investment in time and resources – for individual colleges and for Technology in general. This is why the Shared Vision planning process is so important. Simmons must make informed decisions, weigh tradeoffs, and set priorities for investment that are responsive to the concerns of faculty and Deans.

Briefing Information on the SATV Components

a. Student technology fluency

Description: According to the National Research Council, technology fluency goes beyond software button pushing to include: intellectual capabilities (e.g., problem solving, understanding advantages/disadvantages of different courses of action), concepts (e.g., understand fundamental ideas and processes that support technology), and skills (e.g., the ability to do basic hardware tasks and to use software to create and/or communicate). "Technology Fluency" is an all-encompassing term, recognizing the fact that true proficiency challenges students to integrate and mobilize multiple domains of learning, including: multimedia, visual, information, and technology literacies. Simmons graduates need to be able to transcend rudimentary usage and distinguish themselves with the ability to think critically about technology, generate new ideas, and use technology to produce high quality, innovative work.

Current Environment at Simmons: SSW has developed a comprehensive system for incoming student assessment and orientation. GSLIS has implemented a baseline assessment of the technology fluency of incoming students. Two years ago a CAS working group developed a thoughtful framework for fluency and an assessment designed to be administered to incoming, second year, and graduating students (not yet implemented). Based on feedback from program graduates, SOM is focusing on assessing and improving Excel and other technology literacy among its students. SHS developed a plan for surveying employers to identify current usage, but the survey has not yet been conducted due to funding limitations.

Competitive Environment: Virtually all institutions of higher education recognize that, at a minimum, graduating students should be prepared to use technology effectively in their personal and professional lives. Educause, the national organization for information technology in higher education, conducts an annual survey and shares results through its Core Data Service. According to the 2005 Core Data results, 23% of Masters I private schools already have deployed an information literacy requirement. In addition, another 40% are either experimenting with or considering instituting a requirement. This indicates that in coming years most of Simmons' competitors will have an information literacy requirement in effect.

"Beyond Basic Computer Skills: Implementing Technology Fluency" describes the process used by Meredith College, a private, four year women's college in Raleigh, North Carolina. Meredith takes a two-tiered approach to fluency: fundamental competencies and discipline-specific competencies. Fundamental competencies are addressed through introductory courses that include embedded assessment. To address discipline-specific fluency needs, a summer workgroup meets to support faculty in planning. The development of discipline-specific curricula and assessment are accomplished through a grants program.

Opportunities/Next Steps: To remain competitive, Simmons needs to:

- Articulate expectations for incoming students;
- Articulate overarching, cross-school, goals for graduating student fluency;
- Articulate school and/or discipline-specific goals for graduating student fluency;
- Develop scalable, sustainable systems for assessing student fluency on an iterative basis (incoming, interim, and graduating);

- Develop scalable, sustainable systems for identifying the role that technology plays, if any, in each course at the college, ensuring that students have adequate opportunities to achieve fluency goals; and
- Ensure adequate infrastructure and systems of support for faculty and students.

Because these tasks require significant thought and planning, and because implementation can be labor intensive, it may be cost effective to accomplish some of these tasks at the College level. For example, a cross-college work group could be convened to establish expectations for incoming undergraduate students, seniors, incoming graduate students, and Master's/Ph.D. graduates. This work group would create an opportunity for schools to benefit from each others' prior work, developing a coordinated system for supporting student information technology fluency. In the event that some proficiencies are identified as discipline- or school-specific, schools could add additional components to the core system developed by the work group.

The system for supporting IT fluency should include methods for managing the 1) ongoing research and planning, 2) assessment, and 3) information-sharing necessary to ensure desired fluency among graduating students.

Ongoing Research and Planning -- Ideally, the development of opportunities for increased student fluency will be informed by input from alumni/ae, awareness of successful programs developed by other institutions, and an environmental scan of "state of the art" technology used in the discipline and/or workplace. Two SOM projects may be useful for the college as a whole. First, they are analyzing the technology components of job advertisements to identify technology concepts, capabilities, and skills that need to be included in their program so that graduates can be competitive job candidates. Second, a recent survey of graduates helped determine priorities for technology education within their program (see http://my.simmons.edu/services/technology/ptrc/pdf/Nitkin.pdf).

Assessment -- Self-assessment of technology proficiency is notoriously inaccurate. For this reason, both student and advisor also need to be provided with feedback on the student's current level of fluency in the first year, midway through coursework, and upon graduation. CAS's system for student fluency assessment could be adapted for use by other schools (see http://my.simmons.edu/services/technology/ptrc/pdf/showcase05_tis.pdf and http://my.simmons.edu/services/technology/ptrc/pdf/showcase05_tisruberic.pdf).

Information-Sharing – For students to achieve fluency, students and their advisors need better information about the opportunities that are available at Simmons through specific courses, co-curricular activities, internships, and service learning. Without this inventory of opportunities, Simmons cannot know if it is providing sufficient opportunities for students to achieve fluency with information technology. With better data on current offerings, schools would also be able to identify gaps and decide how to respond, be it through technology infusion across the curriculum or the addition of new core courses.

To meet this need, the College may want to use a system similar to that developed by Linfield College (see http://www.educause.edu/LibraryDetailPage/666&ID=EDU04159). Linfield has developed an online survey faculty and staff can use to identify the technology concepts, capabilities, and skills students will learn within specific courses and co-curricular offerings. Results are available to students and advisors for use in planning and course enrollment decision-making.

Challenges and Implications of Commitment: According to Edwards and Watkins, challenges include:

- Faculty buy-in
- Administrative buy-in and support
- Assessment
- Faculty training and support
- Limitation of resources (infrastructure and equipment)

Because technology is in a constant state of flux, two aspects of implementing cross-curricular technology fluency are particularly challenging:

1. Articulating desired outcomes that are both meaningful and current; and
2. Developing scalable, sustainable systems for assessment.

Assessment is key because it provides faculty, students, administrators, and advisors with information about progress toward desired outcomes. But if assessment instruments aren't kept current, or if they don't assess higher order thinking, they are of limited use.

The costs for systematically supporting student IT fluency are significant, both in terms of preliminary development and personnel for ongoing support. Building upon the work done in the schools, particularly the CAS FIT framework, there still remains significant work to be done, including: establishing expectations, planning a system, developing tools for assessment, developing tools to inventory curricular/co-curricular opportunities, keeping assessments and tools current, analyzing results, disseminating results, and deciding how to respond to results. In order for this to be successful, it will require leadership from the Deans as well as significant commitment from school curriculum and assessment committees, working in partnership with Academic Technology. Funding would also be needed to develop and implement tools for assessment and inventory. The Educational Testing Service has developed a standardized fluency assessment, but at $30 per student it would be a significant financial investment.

b. Faculty technology fluency

Description: In the same way that "fluency" goes beyond rudimentary software usage among students, faculty technology fluency also involves a complex set of capabilities and understandings. According to James Mazoue and Anne Moore (James Madison University and Virginia Tech), "fluent" faculty:

- Are able to perceive the instructional possibilities technology holds for teaching and learning within their discipline;
- Are adept at applying information technology to teaching, learning, and research;
- Have generalizable and transferable aptitudes in using information technology; and
- Exhibit adaptability, the ability to learn, and independence as users of information technology.

Current Environment at Simmons: In recent years, the approach to faculty professional development at Simmons has transitioned from "how to" workshops into a coordinated, diverse set of opportunities that includes:

- **Faculty Showcase Posters,** designed to record innovative work and stimulate conversation across schools;
- **Faculty Lunches,** informal, topic-specific gatherings that are documented and archived online;
- **Faculty Institutes,** an opportunity for intensive, hands-on experience;
- **Face-to-face Sessions,** including software training and Vista workshops;
- **Consultation and Special Project Work,** primarily funded through PTRC grants; and
- **Online and Self-Paced Offerings,** such as the Faculty Resource Center within WebCT Vista.

However, current systems for documenting faculty use of technology at Simmons are weak. Academic Technology produces reports each semester on how much technology is used, such as workshop/event attendance numbers and the percentage of courses that make "active" use of WebCT. However, currently there is no systematic method in place for gathering information from faculty on how well they use technology and how they would like to be able to use technology in teaching and research. Although some schools ask students on course evaluations about how effectively technology is used, there is no consistent system in place for assessing (and improving) the effectiveness of technology in furthering learning goals. Additionally, at present, no mechanisms are in place for using reports and gathered data to inform decision-making and support professional development.

Competitive Environment: Mazoue and Moore note that faculty development and support is consistently ranked in the top ten strategic planning issues in higher education. Effective models for faculty development are:

- Collaboratively designed to support school/faculty goals for teaching and learning (instead of "leading" with technology);
- Designed to be ongoing "communities of practice" that include peer mentoring;
- Supported adequately by professional staff (e.g., instructional designers and technologists);
- Substantive and provide ample time for experimentation and reflection – going beyond superficial or cosmetic use of technology;
- Overtly supported by institutional leaders, including the President and academic deans (e.g., fluency is considered to be part of faculty professional competence); and
- Supported by adequate rewards (e.g., active participation and fluency attainment is factored into promotion and tenure decisions).

The schools that are most successful approach faculty professional development systematically, not as an ad hoc set of offerings. The work, interests, and needs of faculty and their schools should inform systematic program planning and development.

Comparing the infrastructure of support at Simmons with nine competitor institutions, our mechanisms for support are competitive. Out of eleven support strategies designated as effective for faculty support in Educause's 2005 Core Data survey, Simmons currently provides ten. Only Wesleyan University surpassed Simmons by offering all eleven mechanisms for support. In addition, among the nine competitor institutions, Simmons reported the highest percentage of faculty usage of services (67%). Among our competitors, mean faculty usage of faculty support offerings was 36.6% and median usage was 45%.

Opportunities/Next Steps:

Gathering Information: Clearly Simmons faculty are particularly proactive in seeking academic technology support, as compared with competitor institutions. Arabasz, Pirani, and Fawcett note that "Once instructors understand the basics ... they quickly want to apply multimedia and other advanced technologies. Institutions must therefore constantly adapt their resources to meet evolving support needs." A crucial next step for Simmons is gathering better information about faculty interests and concerns so that offerings can be adapted to better meet faculty needs. Academic Technology Committee (ATC), in collaboration with Academic Technology staff, could develop a system for gathering this data, perhaps on an annual basis through the Technology Satisfaction Survey.

Ensuring a Resource-Rich Environment: Academic Technology could develop an online showcase of case studies and examples of exemplary practice so that faculty can learn from others at Simmons and beyond. Current offerings describe projects and best practice, but it would be helpful for faculty to see examples of academic technology in action (similar to WebCT's Exemplary Courses, which are fully accessible to site visitors). With additional staff, Academic Technology could provide expanded instructional design capacity so that they can increase essential support, such as Faculty Institutes and consultation.

Positioning Technology as Central to Processes of Teaching and Learning: When pondering thorny issues associated with teaching and learning, it would be good if one of the questions inevitably asked by deans and faculty would be "in what ways might technology help?" At the school level, deans and faculty need to consider a range of means for supporting and fostering this habit of mind. For example, one option would be to develop a peer mentoring system for faculty. Cautionary Note: mentoring takes time – it is unlikely to succeed if it is expected on top of a full teaching workload. If this strategy is adopted, we need to develop a system with adequate resources and compensation (e.g., support, release time, overload pay) that does not "burn out" the faculty mentors.

Establishing Expectations: As Simmons moves toward improving fluency throughout the College, it is important to ensure that faculty fluency is sufficient to meet the support needs of the institution. The ATC, in collaboration with the Deans, could articulate what "fluency" with technology should mean for faculty at Simmons College and how fluency should be assessed or documented. The ATC could build on the process created by CAS for developing a fluency framework and assessment strategy.

In addition, the College will be more likely to succeed in accomplishing the goal of faculty fluency if expectations and support are explicit. For example, Arabasz, Pirani, and Fawcett recommend: making course management system (WebCT) training a priority, offering time management training (because work with educational technology can be time intensive), assigning instructional designers to schools or departments, and developing grassroots mechanisms for apprenticeship (such as study groups or online faculty discussions). See more on this in the next section on Faculty Roles and Rewards.

Challenges and Implications of Commitment: Faculty in higher education are a particularly heterogeneous group of learners. Their needs and interests vary widely, depending on: age (e.g., pre- or post- "Net Generation"), academic discipline, philosophy of learning, and type of appointment (e.g., adjunct vs. fulltime, tenure track vs. contract). Professional development offerings that are overly general risk meeting the needs and interest of nobody.

Another challenge is that, at this juncture, most faculty have not experienced a learner's perspective on educational technology because it was not part of their college and graduate school learning experience. Because effective use of educational technology is equal parts pedagogy and technology, even professors who excel at face-to-face teaching can encounter difficulties when they take their teaching into the digital realm.

Successful faculty professional development can yield significant gains across the board for student learning and for the national reputation of the institution. But, within the shared vision for academic technology, increasing faculty fluency is also arguably the most resource intensive work to be undertaken by the College. In Arabasz, Pirani, and Fawcett's 2003 institutional survey (n=274), more than 70% of respondents indicated that funding for support is not keeping pace with demands. Survey analysts noted that "the support issue is becoming critical to the continued growth and success of e-learning [academic technology] in higher education."

For faculty, achieving fluency requires time not only to learn about new options, but also time to reflect on implications for teaching, plan, pilot, assess results, and revise. The most significant progress takes place in the context of small group or one-on-one consultation with instructional designers and technologists. The payoff can be great, but this cannot be accomplished without significant support at the school level, additional funding for release time and professional development, and additional staff.

c. Faculty roles and rewards

Description: Faculty roles refer to the set of shared expectations for the effective use of technology in teaching and scholarship. While faculty fluency defines abilities, roles reflect expectations for practice. Paul Hagner, Senior Advisor for Technology Planning and Assessment at the University of Hartford, provides the following analysis of the role that rewards play in faculty technology adoption:

> There's a connection between faculty development, the transformation of teaching and learning, and faculty rewards. And depending on the type of faculty member, the rewards will be different. For the so-called entrepreneurs, who are self-transformed, the rewards are personal ... The so-called second wave consists of faculty members motivated by the promise of equipment, support, and training. For them, the use of technology is not in itself a reward. The third group—the careerists—will not use technology unless they see a direct link to career advancement. The last group—the reluctants—are not interested and do not see the rewards. (2003 NLII Annual Review)

Rewards can include: stipends, staff or student assistant support, internal additional funding through institutional grants, priority in hardware/software upgrades, priority in access to computer labs and "smart" classrooms, additional equipment such as laptops, reduced teaching load to accommodate the demands of technology-intensive or online course development, and the factoring of technology work into promotion and tenure.

Current Environment at Simmons: Simmons offers a range of formal and informal rewards, including: stipends, grants, and release time for designated projects. Support for self-motivated faculty meets demand. For example, the PTRC grants program has yet to receive more proposals than it could fund. However, resources for supporting larger numbers of

second and third wave faculty are limited. Some institutional documents, such as the charge for MCC faculty, explicitly include academic technology in the list of course strategies. However, at the institutional level, no mechanisms and policies are in place for recognizing the expectations for educational technology in faculty teaching and research.

Competitive Environment: In their article "Faculty Issues in Online Education," authors Shelton and Saltsman note that "Many faculty are unprepared for the fundamental differences in the roles required ... A higher level of involvement by administrators in faculty support is needed to ensure success." They go on to observe that, while most faculty find that intrinsic rewards outweigh extrinsic rewards, "faculty must function in a culture that respects their time, efforts, and intellectual output."

Faculty who wish to work on the leading edge are attracted to institutions that support their ideas for using emerging technologies. In contrast, Michael Miller and Dann Husman's research indicates that faculty who are not intrinsically motivated by technology are motivated by opportunities that they believe will improve job satisfaction (e.g., producing better work, improving student learning and engagement).

Institutions provide inadvertent disincentives for using technology if faculty believe that time dedicated to technology puts promotion and tenure at risk. Dorita Bolger and Richard Sprow's study of tenure and promotion policies for liberal arts colleges includes the following observations and recommendations:

> 'The tangible benefits to individual faculty result from institutions amending their policies for tenure and promotion to reflect the changing definition of scholarship' (Zahorski 35) ... We recommend that colleges incorporate definitions, criteria, and value about technology-based projects in institutional review documents ... [and] recommend colleges value technology-based projects, at least equally to print scholarship, when the technology-based project meets established criteria.

While institutions of higher education have dedicated great thought to mechanisms for faculty support and extrinsic incentives such as mini-grants, less attention has been given to the policy level changes, such as the explicit recognition for technology work in promotion and tenure decision-making. None-the-less, faculty have received tenure on the basis of digital scholarship at a number of institutions (e.g., Georgetown University and the University of Virginia).

Opportunities/Next Steps: In developing a "culture of support" for faculty use of academic technology, Deans and other decision-makers may want to consider the following options:

- Articulate the weight that teaching and research with technology, as well as service to others in this area, will receive in consideration for advancement, including promotion and tenure.
- Recognize the additional workload associated with involvement in educational technology, including developing policies for faculty compensation and courseload reduction.
- Expand systems of support to include additional instructional designers, technologists, and administrative staff who are well versed in educational and discipline-specific technologies.
- Provide professional development opportunities to equip faculty with the skills and understanding they need to incorporate technology into their work and to partner effectively with IT staff.

Challenges and Implications of Commitment: Challenges and implications of commitment for faculty roles and rewards mirror the tri-partite structure for promotion and tenure decision-making: service, teaching, and scholarship.

Service – Arabasz, Pirani, and Fawcett note that "whether for technical assistance, pedagogical insight, or a reference suggestion, instructors frequently solicit help from colleagues with advanced technical skills or e-learning experience." Faculty who regularly mentor peers, develop support or user groups, provide workshops, and participate in technology-related workgroups need to know that active involvement in academic technology will "count" just as much as other service-related work.

Teaching – It can be difficult for faculty to accurately assess the scope of work involved in teaching with technology. This work usually involves intense collaboration with instructional designers and technologists, a dynamic that differs radically from traditional courses that can be developed on one's own. Few academics have previous preparation for the demands of this kind of collaboration, including: multimedia production planning, writing for the web, quality assurance/testing, and creating electronic documents that are ADA compliant. Developing an online course involves writing that can be as intense and rigorous as that for a book length manuscript. If work with technology turns out to be more demanding than anticipated, faculty are likely to question whether the rewards are commensurate with the additional demands. In addition, faculty quickly discover that using technology to replicate face-to-face teaching strategies (e.g., lectures online) fails to produce the desired results. Integrating e-learning into teaching challenges faculty to take their courses apart at the seams and rethink how they teach.

Scholarship – An additional associated challenge involves conceptualizations of scholarship. Traditionally, print – books and peer-reviewed journals – are the only publications that "count" as scholarship. In "Digital Humanities at the Crossroads," Harvey Blustain and Donald Spicer observe that digital scholarship is more than "virtual aggregations of printed materials," it is a new way of conceptualizing, manipulating, and analyzing the raw materials of scholarship. "The purpose is not just to digitize things but rather to 'think differently' about content." As in teaching with technology, Blustain and Spicer note that "digital scholarship does not lend itself to the lone monk in the carrel. It requires close collaboration among subject experts, technologists, and librarians." If an institution wants faculty to be involved in digital scholarship, educational DVDs or other forms of multimedia, and web sites, these works must be fully valued. Otherwise, pre-tenure faculty will be understandably reluctant to become involved in development of digital work.

These Fundamental Components are central to fostering an academic culture that supports innovation, student success, and the effective use of technology in teaching, learning and scholarship. Without all three, vision cannot become reality.

In reading about the Potential Priorities that follow, consider the aspects of Student Fluency, Faculty Fluency, and Faculty Roles and Rewards that are required for the success of a given Priority.

1. Discipline specific technologies

Description: In a 2006 ECAR research bulletin, David Wedaman of Brandeis writes that:

> Faculty members often use specialized software designed to support particular, and necessary, aspects of work in their fields. Examples include advanced mathematics and statistical packages, geographical information systems (GIS) software, and specialized graphics programs.

As technology matures and becomes increasingly sophisticated, Simmons faculty members are requesting software and hardware customized to meet their discipline's needs. Examples range from applications designed to acquire vital signs in health care research to simulation software that allows teams of business students to develop marketing strategies and track the effects of their decisions over the long term.

Current Environment at Simmons: In recent years, Simmons has dramatically improved its capacity to support enterprise-wide applications. For example, Adobe Acrobat, Photoshop, and Dreamweaver software are keyserved so that all faculty and staff have access to these tools while on campus. But resources and support for discipline-specific software and hardware lags behind faculty expectations.

Competitive Environment: All institutions, including the largest and best funded, struggle with the challenges of providing specialized support to faculty with diverse needs. In his annual letter to the Harvard's Faculty of Arts and Sciences, Dean Kirby described the problem and suggests the following options:

> Academic research generates specialized IT needs. Some needs are best provided centrally; some are best provided through local service providers. Over time, a number of division, department, group program, center, lab, and individual IT service providers have sprung up to meet developing needs. Our goal now is to maximize collaboration between these local area providers, minimize redundancy, and provide overall service in the most cost-effective manner. As part of this effort, we will also form a small Research Computing Group to serve new faculty or others needing research computing support.

Depending on the size of the institution and available resources, support strategies include: specialized centers with highly trained staff, focused labs (such as those in Communications or GSLIS), subject-specialist technology liaisons or shared staffing, user groups, prioritization of academic software support, recognizing applications support as legitimate academic work for faculty or graduate students, IT/Library collaboration, and consortia.

Opportunities/Next Steps: In our increasingly complex and interconnected technology environment, the introduction of new technologies must be handled with care in order to avoid breaking those already in place. To improve support for discipline-specific software, it would be helpful if faculty, administration, and staff worked together to better understand the dimensions of the challenge. First, a working group could review recent examples to identify aspects of our system of support that work well, and aspects of our system that could be improved. Second, the group could conduct a departmental assessment to identify discipline-specific software needs (those currently met and unmet) and analyze the personnel that would be required to support unmet needs. Third, the group could investigate models for support

(e.g., embedded departmental support, centralized support, etc.) and recommend a strategy that will best meet Simmons' organizational culture and resources.

Challenges and Implications of Commitment: It is important to realize that supporting specialized software requires significantly greater resources than supporting conventional applications. Wedaman notes that:

> There seems to be an unstated assumption in higher education that just about any campus computer use can be supported by an information technology (IT) department staffed with technology generalists – people competent in a wide range of software applications. This model works well for the support of applications that are essentially ubiquitous and relatively easy to use, such as word processing and e-mail ... [But] use and support of specialized applications requires advanced knowledge in the relevant academic discipline, knowledge that a technology generalist is unlikely to have.

According to Wedaman's research, the following factors are critical to the success of supporting specialized academic software:

- Funding
- IT staff expertise
- Collaborative relationships, both individual and interdepartmental, between faculty and IT staff
- Willingness of faculty members to support their own technology uses
- Institutional investment in the disciplines that use the specialized academic applications

Models for support are fraught with tradeoffs. For example, support that is embedded at the school or departmental level can ensure that support personnel understand the faculty interests and perspectives, but it can also lead to a patchwork of implementations that are of uneven quality. The ideal system would involve some dimension of local support, but also a coordinated strategy for communication and technology professional development for support staff. Local support personnel would also need to be well versed in institutional policies and standards. Regardless of the implementation scenario, additional support for discipline-specific software would require additional technical staff.

2. Innovation and emerging technologies

Description: Technology is constantly changing and providing new ways to teach, learn, communicate and interact. Recent developments, sometimes referred to as Web 2.0, hold particular promise for teaching and research. Blogs, wikis, eportfolios, and other forms of "social software" are known for their ease of use and ability to engage sustained attention.

Current Environment at Simmons: At Simmons, we prefer to be on the leading edge of implementing new technologies, but not so adventurous as to be on the "bleeding edge." Simmons' strategies for supporting innovation include PTRC Mini-Grants, the Faculty Institute, and the Faculty Lunch series. In spring 2006, Technology and ATC convened an Emerging Technologies (ET) subcommittee. This group produced a white paper entitled "Emerging for Us: Exploring the Future of Emerging Academic Technology at Simmons" (http://my.simmons.edu/services/technology/ptrc/pdf/Emerging_Technology_Report_2006.pdf). Through research and a survey of ATC/TechGov, the subcommittee identified the

following technologies as particularly promising for Simmons: Digital media, ePortfolios, Podcasting, and Social Software. Academic Technology currently supports several small-scale pilot ET implementations (for example, ePortfolios in GSLIS, SSW Urban Leadership, and CAS Honors Program).

There are a number of examples of innovation already in place. For example, the Summer 2006 Academic Technology Faculty Institute featured Digital Storytelling. GSLIS offers a series of events related to emerging technologies. They are experimenting with blogs and podcasting on computers in their lab.

While Simmons is holding its own regarding experiments and pilots of new technologies, there remain challenges in converting these to production services. First, scaling up pilots to widespread adoption requires integration with infrastructure that is typically not available before technologies mature. Second, when new technologies remain specialized, neither central nor local support models have been developed.

Competitive Environment: To foster innovation, institutions need to provide a space in which ideas can incubate and experimentation can take place. Experimentation is an important part of the process – Educause's Annual Core Data Survey separates out experimentation as a distinct category in the continuum from "Not Planned" to "Deployed." Many institutions are at the experimentation phase in working with the most recent crop of innovations. For example the 2005 survey indicated that 43.5% of Masters I private institutions were "experimenting with" blogs, while only 13% considered their usage to be "deployed."

Depending on an institution's willingness to take risks and resources available, support for innovation varies greatly. Typically, innovation begins with one or two pilot projects. These pilot initiatives receive significant support -- instructional design consultations, technology troubleshooting, and funding. Ideally, "formative" assessment is built into the implementation plan, gathering feedback from participants and using that information to make course corrections along the way.

Only after several rounds of pilots, revisions, and reflection on lessons learned, are decisions made regarding broader adoption. Many innovations will continue to be deployed in certain courses or schools, but never become adopted on an enterprise level because they are only relevant to certain use scenarios. Major adoption is not always ideal or even the goal.

Opportunities/Next Steps: If Simmons decides to prioritize the support of emerging technologies, options include:

- Convening exploratory groups at the school level to investigate recent innovations that would be relevant to faculty and student interests (similar to the emerging technologies series that is sponsored by GSLIS students);
- At the department and school level, designating key faculty as innovation specialists, investing in their professional development (both on and off campus), with the expectation that these ambassadors will share what they are learning at departmental meetings;
- Convene a group of faculty to explore cross-use scenarios (instances in which one technology innovation can be used for multiple purposes, for example using ePortfolios or blogs for faculty websites);

- Designating "Improving Student Learning with Emerging Technologies" as a Faculty Showcase theme, highlighting Simmons faculty work in the area of emerging technologies;
- Inviting speakers from other institutions to present their ET project work at Faculty Lunches;
- Developing exemplary online case studies, including tips and lessons learned, for inclusion in the Faculty Resource Center within Vista;
- Offering Faculty Institutes on ET topics, providing faculty with the time and focused attention needed to learn the technologies while also exploring implications for teaching and research; and
- Inviting Institute graduates to apply for PTRC grants to fund pilot projects that use ETs for research and teaching.

Challenges and Implications of Commitment: It's important to keep in mind that, unlike enterprise applications such as learning management systems, emerging technologies are less likely to be adopted by all faculty members. Use scenarios are likely to be customized and program or course specific, requiring thoughtful research, experimentation, consultation, and design.

Without additional resources, Simmons is not well positioned to do the custom integration and programming often needed to integrate emerging technologies with existing authentication and student information systems. In addition, whenever a new technology is taken on there are likely to be software compatibility and support implications.

By definition, "emerging" technologies are in a state of flux. Some of these technologies will fail to produce desired outcomes and will be discarded – others will produce promising results, be revised and refined into mature applications, and persist. It is important to allow for the possibility of "noble failures."

Some innovations, such as ePortfolios, are receiving particular attention within certain colleges. Because each instance of many of these technologies is "owned" by the student (blogs and ePortfolios are two notable examples), schools will need to clarify policies and strategies for funding. For instance, if the student owns the ePortfolio, will the school ask students to pay for it so that they continue their subscription after graduation?

3. Learning management system (e.g. WebCT/Vista)

Description: Within the past few years, learning management systems (LMSs) such as WebCT and Blackboard have become assumed offerings at most institutions of higher education. LMSs typically aggregate several teaching tools into one online software application: content delivery (including multiple forms of content packaged into a "learning module"), discussion boards, assignment dropboxes, whiteboard/chat, gradebook, and an assessment/survey tool. The LMS can be used in many ways, some more pedagogically effective than others.

Current Environment at Simmons: Over the past 18 months, Simmons has transitioned from WebCT 3.8, to Vista, WebCT's most comprehensive product. Simmons' use of WebCT is robust. Active use ranges from 79-100% in SHS, SSW, GSLIS, and SOM ("active" entails online course materials beyond the syllabus, use of tools, and significant number of student logins). CAS, whose program places less emphasis on online learning, still has a respectable adoption rate of 37%. College-wide, 73% of all courses have a WebCT presence. Students

frequently login to WebCT, an average of 20 times per month, which means that, aside from email, WebCT is perhaps the most frequently used academic software on campus.

Competitive Environment: As mentioned previously, the LMS is now considered to be a mission critical application in higher education. Educause's 2005 survey indicates that 66.7% of Masters I private institutions have a fully deployed LMS. And only 8.7% of these institutions do not plan to provide faculty and students with a learning management system.

In October 2005, Blackboard acquired WebCT, which means that they now own 65% of the LMS market in the United States. In coming years, Blackboard's primary competition will come from university-developed "open source" software, which is non-proprietary.

As for policies and best practices of our competitors, many institutions require faculty to post, at the very least, their course syllabi in the LMS. According to a 2003 Educause study,

> Once faculty start to use a CMS [LMS], their use of technology tends to grow. Nearly two-thirds of the faculty surveyed said they used a CMS more extensively or intensively at the time of the survey than they did when they first started using the technology. By far the most important reason given for the growth in their CMS [LMS] use was that, over time, they began to see increased uses for it in their teaching. Many faculty spoke of how using the CMS [LMS] allowed them to see new ways that they could use it in their classes or ways they might use it in a different type of class.

Opportunities/Next Steps: Despite the fact that some institutions require faculty to post syllabi online, it is unclear – even doubtful – that online syllabi alone constitute a pedagogically effective use of the LMS. Learning management systems are most effective when used to enhance communication and interactive learning.

The move to Vista at Simmons represents an opportunity to help faculty improve how they are using the tool. For example, CAS faculty who teach writing intensive courses in association with writing assistants face tremendous logistical challenges. Once a paper is submitted, comments and work progress need to be shared among students, faculty, and writing assistants. This type of collaboration is difficult to accomplish with a single paper copy of an assignment, but relatively easy to manage within Vista if the document is submitted, commented upon, and resubmitted online within an electronic dropbox shared by student, professor, and writing assistant.

Academic Technology has developed an extensive set of resources in the Faculty Resource Center (FRC), located within Vista and accessible to both staff and faculty. The FRC could be expanded to include a rubric for assessing online courses, along with sample course modules that are annotated with explanatory notes.

At the school level, policies and expectations regarding LMS need to be more explicit, so that faculty can know where the school stands regarding LMS usage. Expectations could be expressed (and reevaluated on a regular basis) along a continuum, spanning from: no change in policy, increased commitment to use of LMS, specific baseline expectations for LMS usage, to significant expansion of LMS usage and explicit expectations for active usage. Because of wide variations in the relevance of LMSs across programs and disciplines, these policies are probably best developed by deans in consultation with their faculty and Academic Technology.

Challenges and Implications of Commitment: Some faculty experience a steep learning curve when they begin to use a LMS for interactive learning. Many faculty find that the experience challenges them to rethink their whole approach to teaching – this can be invigorating and yield positive results, but also daunting. Faculty also often express concern over the workload associated with developing online course resources, assignments, and learning activities. It is important to provide faculty with ample instructional design support, technical help, tips for optimizing time/workflow, and examples of best practice. Developing and refining opportunities for support, ranging from private consultation to online support materials, is a resource intensive proposition that will require a significant investment of Academic Technology staff time.

4. Online learning and distance education

Description: While distance education in the form of correspondence courses have been around for hundreds of years, current technology makes it possible for learning at a distance to be more interactive, engaging, and substantive. "Online learning" does not have to be an all or nothing venture. In "Supporting E-Learning in Higher Education," the authors describe a continuum of options for online learning:

1. *Online distance learning* courses (also called "fully online" courses) in which all interactions between students and teacher take place online;
2. *Hybrid courses* (also called "blended" courses) in which some "seat" time is replaced with interactions online; and
3. *Courses supplemented by technology* in which all sessions take place in a classroom, but some or much of the learning takes place online (e.g., discussions, simulations, testing).

All of these options can be described as "e-learning." It is important to note that the process for developing fully-online courses differs radically from the process usually used for face-to-face course development. This is because, in addition to instructional design and content development, the "course" (learning environment) needs to be built within a learning management system (e.g., WebCT). The systematic process for developing a successful online course is similar to that used by university presses, involving the refinement of text through a succession of drafts as well as collaboration with editors and other specialists who attend to graphics, layout, copyright, and technical aspects of production.

According to the authors of "Supporting E-Learning in Higher Education,"

> Online distance-learning courses generally got an earlier start than hybrid [blended] courses, but hybrid courses have overtaken them in the past few years. Hybrid courses are now offered by a higher percentage of institutions than online courses (80% versus 71%).

Current Environment at Simmons: Simmons adoption of e-learning varies greatly by school, with selected areas of heavy adoption. SHS offers several online programs that are supported by its recently-established Division of Online Teaching and Learning (DOTL). Academic Technology staff, working in partnership with SHS faculty, developed some of SHS's online courses. Others were developed by SHS/DOTL. One of these programs is offered in conjunction with Brandeis University.

GSLIS also offers online courses and workshops. They recently joined the WISE network, a consortium of institutions offering online LIS courses, and expect to increase their online offerings in the coming year.

Academic Technology's Gail Matthews-DeNatale worked with Lynn Foord-May to develop an online Faculty Institute to help faculty members develop the abilities and understandings they need to successfully author and teach online courses. This Institute, entitled "Learning About Learning Online," received an award from the Exemplary Course Project, an annual international competition.

Competitive Environment: According to the authors of "Supporting E-Learning in Higher Education," there is a

> Misperception .. that creating an e-learning course is as easy as bringing in notes in Microsoft Word, having the instructional designer turn the handle like an organ grinder, and boom – out comes a great course.

To ensure quality across courses, most institutions that are serious about distance learning require faculty to complete an orientation program. Depending on the relevance of distance education to an institution's mission, a range of support models exist. Institutions offering only a handful of online courses may opt for faculty-produced courses. However, if online offerings increase, this homegrown approach may lead to a patchwork of unevenly developed courses and could have a negative impact on outsider perceptions of brand quality. Institutions that offer whole programs online usually professionalize the course development/production process, designating a center for production and articulating standards for production.

In this professionalized model, a "distance education" unit or office is charged with project management and development of online courses. For example, Boston University has an entire unit dedicated to the development of its online programs and to the professional development of faculty who teach those courses. In this "Office of Distance Education" model, online courses are produced by teams that include instructional designers, technologists, and faculty who work under contract with the office as subject matter experts.

In addition, many institutions set standards for online courses, requiring online courses to:

- Be designed in close consultation with a team that includes instructional designers and technologists;
- Go beyond "lectures online" to provide students with an interactive learning experience and ensure instructor responsiveness;
- Adhere to methods and standards for ADA compliance;
- Be bandwidth-friendly so that people with slower Internet connections can participate;
- Be developed with a set of professionally-designed templates; and
- Undergo quality assurance checking before release.

Opportunities/Next Steps: If Simmons or an individual school decides to invest in e-learning, the College would need to articulate standards and put consistent systems in place for:

- Faculty professional development and mentoring;
- Online/hybrid course production;

- Quality assurance (e.g., ensuring that all online courses are ADA-compliant);
- Formative assessment (the systematic collection, analysis, and response to participant feedback prior to the end of the course) for first-time online offerings; and
- Support for fully-online students (e.g., students who never come to campus need to be able to access core services such as getting a Simmons ID).

Challenges and Implications of Commitment: In "Faculty as Authors of Online Courses: Support and Mentoring," Gail Matthews-DeNatale writes that

> Good professors excel at engaging groups of students face-to-face, but few are prepared to develop courses online ... Faculty members and academic administrators who are new to e-learning are likely to overlook or even eschew logistical details that technologically-adventurous professors easily think through, grapple with, and resolve. Likewise, tech-savvy faculty may be undeterred by technical glitches, but have tremendous difficulty conceptualizing online offerings that are pedagogically progressive and grounded in inquiry.

As previously noted, online course authoring and development are time intensive tasks. Unless the faculty member developing the course has an inherent interest in technology and a background in education, it is usually unrealistic to expect faculty to do instructional design, course content development, and technical production. Most institutions seriously underestimate the cost of first time development. As with any start-up business, many online programs take years of development before they become revenue generators – and some never are able to break even. Serious attention needs to be given to issues of faculty workload, compensation, and intellectual property.

Distance education places demands on other parts of the institution. For example, conducting a market analysis before investing resources in new program development. Also strategies for program marketing and support may need to be expanded or reformulated.

Online/hybrid course development is similar to capital improvement; they both involve significant preliminary investment of human and financial resources, but once courses are carefully constructed, assessed, and refined, they begin to reap benefits. However, as with capital improvements, it is not possible to rest on ones' laurels. As with buildings, courses need a certain amount of upkeep, and those resources need to be allocated up front if the institution wishes to keep offerings competitive.

5. Learning environments inside and outside the classroom

Description: According to Educause's Diana Oblinger:

> Sometimes learning occurs in classrooms (formal learning); other times it results from serendipitous interactions among individuals (informal learning). Space – whether physical or virtual – can have an impact on learning. It can bring people together; it can encourage exploration, collaboration, and discussion. Or, space can carry an unspoken message of silence and disconnectedness. More and more we see the power of built pedagogy (the ability of space to define how one teaches) in colleges and universities ... Technology has also brought unique capabilities to learning. Whether by stimulating more interaction through the use of personal response systems or by videoconferencing with international experts, IT has altered learning spaces.

"Learning environments" can include everything from online learning spaces to physical classrooms. However, for the purposes of this document, our focus is on two types of physical spaces:

1. traditional classrooms and labs; and
2. informal learning spaces (libraries, dorms, dining areas, and student support centers).

Current Environment at Simmons: In the most recent Technology Satisfaction Survey, 89% of faculty and staff respondents indicated they were "satisfied or very satisfied" with classroom technology at the College. Simmons is also in the midst of creating a host of new learning spaces, both formal and informal.

Simmons' strategy integrating technology into formal learning environments (classrooms) has evolved in two phases. First, starting in the late '90s, the College set a goal of ensuring that all classrooms would be "media-ready," meaning that systems for projection, Internet access, and video/audio playback would be in place and computers could be delivered upon request. More recently, Technology developed a new system, a standard package that includes a podium, computer, DVD/VCR, projections, and touch panel control. This system is now installed in almost all classrooms.

In addition to standard equipment, the following additional devices are available upon request:

- "smartboards" that can be used to save session notes;
- "clickers" that can be used for polling students to prompt discussion; and
- Videoconferencing that makes is possible for two-way communication across multiple locations.

Certain areas at Simmons, such as Java City, One Palace Road, and Beatley Library, are "wireless zones." The addition of other wireless zones is under consideration.

Competitive Environment: In the Educause Core Data Survey, we rank in the top tier when judged on our ability to provide faculty and students with near-ubiquitous access to a core package of tools (classroom computers, LCD projection, Internet).

While Simmons has made notable investments in learning environments proportional to our resources, other institutions with either greater resources (MIT, Wellesley, Wesleyan) or a greater commitment to IT (Bentley, Bryant) spend significantly more than we do. Because we are in a very competitive and geographically dense local market for education, both students and faculty will tend to compare our resources to those institutions who have long demonstrated this level of leadership and financial commitment.

Opportunities/Next Steps: As noted by Oblinger, technology can be used to flexibly extend learning and increase student engagement – both inside and outside in the classroom. For example, in advanced classrooms such as Wallenberg Hall Theater at Stanford University (wallenberg.stanford.edu/classresources/rooms/pwlt.html), students and faculty can:

- use the CopyCam to save work from the whiteboard to the web;
- quickly reconfigure lightweight, flexible, tables and chairs to facilitate multiple modes of working together or different numbers of learners;

- connect with guests from around the world using videoconferencing technology; and
- work with one or more of the 20 wirelessly connected laptops that are always available in each classroom.

In thinking about learning environments, it is as important to think expansively about the process for planning as it is to consider the spaces themselves. For example, ethnographic planning, sometimes called participatory design, is directed to help planners transcend faulty assumptions about the technological needs and preferences of people who use learning environments. Methods include: documenting direct observations, photo elicitation, shadowing, interviews and focus groups, cognitive mapping, self-reports and time allocation diaries, and usability testing. This approach is being used by twelve northeastern schools to assess user needs and rethink learning space design (including Emerson, Vassar, Smith, Williams, Hamilton, and Wheaton).

Challenges and Implications of Commitment: Increasingly, students and faculty expect to be able to use a range of technologies across all of the spaces in which they learn. Students who grow up in homes that have wireless networks and use mobile devices as part of their everyday experience will be accustomed to having that level of access during the course of day-to-day activity. However, the institution needs to consider pros and cons associated with providing ubiquitous technology. For example, wireless access in the classroom may also mean that students check email and use online chat during class time. New capabilities often have unintended consequences, necessitating the development of new policies and conventions of etiquette.

Particular challenges for Simmons include:

- space constraints associated with an urban campus,
- high initial cost of purchase and installation,
- ongoing support and maintenance (100% replacement every five years),
- upgrades to keep pace with emerging technologies, and
- orientation and training for users (faculty, staff, and students).

Finally, it is important to note that technology can be used to improve learning, or it can serve as a distraction. Further investment in learning environments will require investment in faculty fluency. When asked what they would do if they could "change one thing about how technology is used for teaching and learning at Simmons," Students responding to the annual Technology survey said that some instructors' lack of familiarity with classroom technology wasted valuable class time. In addition, students stressed the need for improved use of technology, citing ineffective PowerPoint presentations as an example.

If Simmons fails to address student technology fluency and faculty fluency (including time to develop materials and experiment with new curriculum), expensive resources will be both underused and misused, resulting in disappointment and frustration for faculty and students alike.

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Acknowledgements

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