

Student Technology Enhancement Plan

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EXECUTIVE SUMMARY

The Student Technology Enhancement Task Force (TF) began work in November 2004. After four meetings of the entire group, they came to the following recommendation.

The university needs to proceed towards a standardization of computers through a series of steps that may eventually include a laptop requirement, which are outlined in the following report. The TF, after lengthy discussion, voted not to recommend a laptop requirement in the near future, but most agreed it is a likely event. Instead, the TF decided to lay the groundwork for such a requirement by pushing LHU technology into a more laptop friendly, network friendly direction.

Here are the steps generated by the task force: 1) create a wireless network on campus; 2) develop standardization of student computers; 3) supply students with information on the "standard" computer through web links, one to a computer vendor with whom the university has a contract; 4) create a technology certificate to confirm to employers that LHU students are technologically prepared; 5) initiate a faculty development program so faculty can provide ways to use laptops academically.

Projected Costs of TF Recommendations

Recommended Steps	Timing	Dollars
Wireless	AY 04-05	\$286,000
Tech certificate	AY 06-07	???
Faculty development	AY 05-06	\$101,000
Total		\$387,000

STUDENT TECHNOLOGY ENHANCEMENT PLAN

BACKGROUND

The Laptop Task Force (henceforth "TF") was constituted in early November 2004 in response to a faculty request to President Miller. The TF was asked by President Miller and Provost Hossain to "articulate and recommend a university policy regarding student technology implementation."

The TF met four times, dividing into subcommittees at the first meeting. These subcommittees did the bulk of the work and were responsible for development of the steps laid out in this document. After some discussion, it was determined that three subcommittees were needed: one for technology, to determine the hardware and software needs of a laptop university (and manpower needed, too); one for finance, to determine the ramifications on LHUP of laptop implementation; one for education, to determine the value of laptops to LHUP's educational mission. Rick Lilla of the library was asked to provide research; the web links created can be found at www.lhup.edu/library/home.htm.

Each of the four meetings had full discussion of various aspects; the second meeting included outline reports from the three subcommittees and a few words from Mr. Lilla on available research.

At this meeting, the technology subcommittee laid the groundwork for many of the steps outlined below. First was a recognition that wireless networking was forthcoming at the university anyway, but was a necessary part of the "laptop" process. Second was the need for more technicians in the computing department: hiring two more was advised based on the Longwood University experience. Third we began discussions about standardization: what would a "required laptop" need?

A major point made in this report, a bit stunning to many on the TF, was that no current wireless technology would allow a classroom full of laptops – 25 to 40 laptops could not connect effectively to a wireless module, and only one wireless module would really work in a room.

Further information provided at this meeting included the determination by the finance subcommittee, after researching five public institutions with laptop requirements (Northern Michigan University, SUNY-Morrisville, Winona State, University of Minnesota, Crookston, Mayville State University), was that student recruiting did not seem to be ill effected, though the admonition was to "make sure that students use them enough once they get here to feel they have gotten their money's worth."

The education subcommittee reported that they had little success in finding an educational explanation for a laptop requirement: universities who had made the commitment to laptops had not revealed a pedagogical reason for doing so; it was apparent why certain programs – engineering, sciences, even education – desired and could benefit from laptops, but how comprehensive institutions did so was unclear. Even the Longwood information provided no clue. The subcommittee was asked to correspond with departments on campus requesting suggestions for educational use.

A final point of discussion was the report from Paula Bell's CIS class. That report listed many issues that needed thought and recognized that for a laptop requirement to be instituted, it needed to be done correctly.

The third, and longest, meeting included a report from the education subcommittee on faculty use of the possible required laptops. The subcommittee received no response from departments on ways to use the laptops; research found little in the way of broad-based plans for laptop use.

A major piece of the discussion was over Mark Cloud's proposal, titled "Ubiquitous Computing @ Lock Haven University." This outline began with four premises: a wireless network, student choice for computer purchases, standardized minimums in hardware and software, faculty and student development of skills. The group agreed essentially with these components, though much time was spent working on the details.

The final meeting of the TF was spent attempting to generate consensus. In the end, everyone agreed with some basic principles: a wireless network on campus, standardization of machines and some software (MS Office, an anti-virus program, XP Professional), a need to develop faculty-driven classroom

use of laptops, and that laptops could not be a requirement for Fall '05. These basics were agreed upon; much discussion covered the tone of the TF's recommendation and the nature that recommendation should take.

Before finishing the written report, an open forum was held on 12 January 2005. This forum was attended by around fifty people and outlined the TF's recommendations and asked for input. The most noteworthy suggestion that is not incorporated in the outlined steps is the need for student support: currently, LHUP does not support students' computing needs. We need a culture of such support before a laptop requirement is instituted that is carried on heavily once one is.

The following pages lay out a program for LHUP to enhance the current student technology by creating a wireless network, standardizing computing on campus, providing access to incoming students to standardized equipment from vendors solicited by the university, and generating academic uses for laptops in the future through a general education proficiency requirement and faculty developed implementations.

The TF recognizes that laptops will become more common on campus, as other campuses have announced laptop requirement programs, and sees these steps as a way for LHU to be ready for the likely possibility that it will become a "laptop university" maybe as soon as the fall of 2006.

RECOMMENDATIONS

WIRELESS CAMPUS

In order to have a successful implementation of a notebook requirement, it is necessary to have the appropriate infrastructure in place. In the case of LHU, the deployment of wireless needs to be expanded. The benefit of a notebook over a desktop computer is portability. However, the advantage of portability is diminished without network access. Currently, wireless access is available in two residence halls (McEntire and High), Stevenson Library, Raub Hall, Sullivan Hall, and portions of Robinson Hall. Wireless should be available in all major academic buildings (Ulmer, Akeley, Zimmerli, Sloan, East Campus, and Founder's Hall in Clearfield). Other areas to consider would Bentley, Parsons Union Building, and the remaining residence halls along with outdoor areas.

Wireless deployment generates several benefits. In theory it would be access for everyone anytime, anywhere. This gives students much greater flexibility when it comes to where and when they can study, do research, or simply read their email. There is also value in having a wireless campus when it comes to recruiting regardless of a computer requirement. This could be one of the preliminary steps put in place to support a future requirement.

Direct costs, support costs, and the cost of technical obsolescence are part of any commitment to technology. Currently it costs about \$15,000 to deploy wireless in a typical building (of course this varies with size etc.). So there is an initial cost depending on the number of buildings.

The additional support staff for both the wireless deployment and the anticipated number of student computers that will be added to the network is costly; the TF roughly estimated \$100,000 for two new staff members. This estimate matches the increase reported at Longwood when they moved to a laptop requirement.

The amount of bandwidth to the internet needs to be evaluated and upgraded if necessary (which needs to be done regardless). Also, as the wireless infrastructure ages, a plan needs to be in place for financing upgrades and replacement equipment.

STANDARDIZATION

Along with a wireless network, the university would need to establish minimum software and operating system standards and settings for access to that network. For example, everyone must have an updated version of McAfee antivirus software and Windows XP Professional (or Macintosh OSX) with personal firewalls turned on. We could also standardize a set of recommended applications (e.g., MS Office Professional, Acrobat Reader, FrontPage).

Students could be assisted in fulfilling these standards by creating a recommended set of hardware and software requirements for new desktop and laptop computer purchases listed on our website(see next recommendation). There could also be links to purchase student-discounted versions of MS Office Professional, McAfee and other recommended applications.

We should also establish an agreement with a vendor(s) to offer computers (both laptops and desktops) for LHU students that meet all the standards with the needed software preinstalled. This would provide the easiest method for students to accomplish the standards. The vendor could also provide on-campus support that would increase the likelihood that students purchase a compliant computer.

Implementation of this program requires a strong University advocacy of the adopted standards (e.g., brochures, campus visitations, orientations, faculty support, web pages). Our advocacy of purchasing laptops in such forums can help guide students to the wisdom for such a choice without forcing students to choose a laptop.

Standardization generates many benefits: (1) it should make academic computing on the network more secure and free of viruses; (2) instructors can be assured that students' computers will have a standard set of computing power and software applications; (3) we improve the computing atmosphere and tools of students while (at least initially) preserving student choice---no mandate; (4) the process of standardization affords an opportunity to transition to more stringent requirements. Thus, as early as fall 2005, standards could be established for students to serve as recommended "guides" for personal purchases. In the future, the same standards could become a requirement (i.e., you must have a laptop or desktop that meets the standards). The addition of a vendor would help expedite the establishment of standards; (5) if we were to require exclusively laptops in the future, the standardization process would help make the campus ready.

There are costs to implementing a standard, though they are "hidden." A sufficient staff is needed to assess compliance with the standards. A procedure must be created for annual vetting of computers that do and do not have the necessary software. You could bring your computer with XP Home version for example, but it would not be allowed on the network. Also, to assist students in making the adoption of the standardization worthwhile, we will need to provide additional support for student computing. That can be partially realized through a vendor, however, additional staff will be needed to help students keep their computers in good working order.

Advocating a standard will create several problems that need to be solved. How do we establish standard hardware and software recommendations for both Macintosh and Windows-based computers? How do we create publicity (e.g, web-pages, brochures) to support the initiative? How do we obtain vendor agreements? How do we encourage faculty utilization of the new standards in their classroom teaching?

WEB LINK

The TF recommends that standardized software and hardware requirements be established every year for all in-coming students. These requirements would clarify, before a new student arrives on campus, what hardware and software a student's computer must include. These requirements will be generated from the standardization process outlined above.

To effectively communicate these requirements, the following web sites will need to prominently display the computer specifications: Admissions, Student Life/Orientation and the Computer Center. In addition, the specifications will need to be included in a mailing to all prospective students several times throughout the year, including early in the process (spring of the junior year) all the way through the point at which the deposit is paid.

As it is expected that some students will not have a computer that meets the university's requirements, all communication (web postings, letters, emails) will include a recommended third party source for purchasing a computer with approved hardware and software. To establish what third party vendor LHU will recommend to students, an RFP will need to be sent out to vendors.

The computer center would be most suited to handle the RFP and to answer questions from students about the hardware and software specifications. In light of the increased workload this endeavor will entail, an evaluation of the computer staffing will need to be conducted and more staff may need to be

added.

STUDENT TECHNOLOGY COMPETENCY REQUIREMENT

A desired outcome of having faculty versed in incorporating technology into the classroom is the ability to enhance the technological skills of LHU students. In today's workforce, employers demand that college graduates exhibit a minimum level of computer skills, however, this is often difficult to assess other than by asking the uncomplicated question "are you computer literate?"

The TF recommends that LHU adopt a Student Technology Competency Requirement in order for students to graduate. Completion of the Technology Competency Requirement would be indicated on the student's official transcript, thereby informing employers, graduate schools, and other interested parties, that the student has met a minimum level of technological skill. The actual competencies required would be open to debate by faculty and would be flexible enough that they can be changed in order to respond to emerging technologies. As of this writing, technological skills for the Technology Competency Requirement could include being proficient in the use of Microsoft Word, Excel, PowerPoint, Internet Explorer, and internet search tools. Furthermore, a Technology Competency Requirement reinforces the university's commitment to technology and communicates a tangible value-added dimension to prospective students and for PR purposes.

There are a number of ways that a Technology Competency Requirement can be implemented at LHU. Some possibilities include:

- Incorporating a technology requirement within existing general education requirements. A student would be required to take a course (or series of courses) that would enhance their technology skills.
- Including Technology Competency as part of general education overlays and offering courses throughout the curriculum that would meet the guidelines of the overlay (much in the same way as the Writing Emphasis or Informational Literacy overlays are structured).
- Providing an online learning venue where students could learn the skills necessary to meet the Technology Competency requirement. An online learning venue would include interactive training and embedded assessment to solidify a student's skills.

Whichever option is decided upon, LHU will need to assess students' technological skills in order to determine whether or not they meet the standards to be able to graduate. For instance, Longwood University requires that all students pass an online competency exam before they are able to apply for graduation. First-year students would be assessed in the area of technological skills (much in the same way as is done with the Math Placement Test) and would be placed in the course appropriate to their skill level.

FACULTY DEVELOPMENT

Feedback to the taskforce reinforced the concept that if laptop computers were to be required that application of their use in the classroom would significantly increase the value of the requirement. A recurring question in TF discussions was "why should we do this?" The financial subcommittee, the CIS class report, and several sources (most notably the University of Minnesota-Crookston) indicate that *if* the university is going to do this, strong faculty-classroom reinforcement is necessary. The assessments at Crookston, a long-term laptop university, show that even after nearly ten years, faculty are not on board enough to fully reinforce laptop adoption. The benefits of this initiative as viewed by the taskforce includes the fact that faculty and students will learn "in step." The laptop initiative will also demonstrate significant leadership and initiative on the part of faculty and administration and would serve as a significant public relations tool for the University.

The overall impression of the taskforce was that while the "divide" in technologic expertise between LHUP students and faculty has decreased over the past five to ten years it continues to exist. The use of laptop computers within the classroom setting would not apply to some disciplines and faculty should always retain the autonomy to decide if they desire to introduce laptop computers, or technology for that matter, into their instructional armamentarium. Of those faculties that desire to add this tool into their classroom strategies many do not possess the requisite knowledge and skills to migrate to the

online environment or effectively use laptops in a classroom setting.

The proposal of the TF is that the university allocates funds for the 2005-06 AY to run several (as many as the guiding committee deems viable) faculty developed pilot programs. The RFPs for these funds will provide guidelines so that the resulting proposals generate classroom-driven laptop reinforcement. These proposals might include release time for faculty, or groups of faculty (it may be possible the entire freshman seminar program might propose laptop use), and/or providing laptops for part of the projects, part of the student body.

This proposal calls for a commitment of faculty development funds of approximately \$50,000 – (six faculty members on quarter time release for a semester).

It might also be necessary (and this may be a requisite step towards “laptop university”) to “hard wire” one room on campus, as the Physician Assistant Program dedicated classroom is wired, so that a whole class might have internet access via laptops at once. The cost of hardwiring the Zimmerli 7 classroom in 1998 (for the PA program) was \$26,000. An additional \$25,000 dollars would be required to assure that faculty were provided with laptop computers (10 faculty at \$2,500 per unit) having similar hardware and software specifications as those required by the students. This would enable them to adequately prepare for deployment and anticipate the barriers that students may encounter to successful implementation.

University administration would also need to work with faculty to determine the mechanisms by which these funds would be allocated and how the faculty development initiatives would be implemented on campus. Several existing resources such as the TLC and the office of distance education would represent logical resources that could be tapped to provide the leadership and expertise that would be required to carry this initiative forward.

ASSESSMENT

Part of the charge of the TF was to report ways to assess what we propose.

We submit that the best assessment is for the TF to convene once each semester in AY 2005-06 to assess how the above points are being implemented. It would be necessary for the staff from the computing center (represented on the TF by Don Patterson) to inform the TF about the incorporation of wireless technology; representatives from computing and admissions to discuss the website for standardization; student life to indicate any surveys or anecdotes they may be aware of indicating purchase and use of computers; the committee in charge of distributing faculty development funds to report on their charges. The TF will then report to the President on progress towards a laptop university.

CONCLUSION

The TF was created by President Miller in part due to negative reactions to the possibility of a “laptop requirement” among both faculty and students. The members of the TF discussed their impression of technology frequently, and almost always positively – more than once it was voiced “I’m a supporter of technology (sometimes specifically laptops), but...”

The recommendations above attempt to respond to some extent to the “but” in the sentence: the TF was pretty unanimous in the assessment that LHU is currently not prepared in hardware or staff to accommodate a laptop requirement.

However, one point of consensus of the TF is that some type of technology is likely to be mandatory for students in the near future: the longer we put off that mandatory date, the more possibilities for what type of technology became realistic (whether they be PDAs, view screens, or some new, small technology). There was much discussion about “laptops” (notebook computers) and the upside to desktops (longer lasting, faster hookup through Ethernet, larger screen), but the pizzazz of laptops (portability, mobile internet links) have made them the technology of choice on campuses.

In the end, we recognize the innovation of technology and its probable impact on our campus – the Student Life survey indicating that 89% of our students already bring computers, along with various studies on the shifts in student psychology in the new millennium (the ubiquity of cell phones, PDAs, laptops, and other technology), indicate the shift is already at hand. The announcement in the fall that

all of the Massachusetts state schools were requiring laptops in fall 2005 also is a sure sign of where we may be headed, since those institutions are in many ways our peers.

LHU needs to prepare for more demand for technological expertise from prospective student employers and prospective students. The steps outlined above are meant to point the President in the direction of a more computerized student body, and, possibly a laptop requirement in the future.

TABLE 1**COSTS**

RECOMMENDATION		TIME	COST
Wireless Campus	10 buildings @ \$15,000 each (hardware only)	ASAP	\$150,000
2 New Technicians	Est. \$50,000/yr, each	ASAP	\$100,000
Increased bandwidth	\$3000/mo.	Fall 05	\$36,000
Subtotal			\$286,000.00
Faculty Development			
Hard-wired room	\$26,000		\$26,000
Faculty laptops	\$25,000		\$25,000
Faculty release time	6 1/4 -time releases		\$50,000
Subtotal			\$101,000.00
Total hard money [1]			\$387,000

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PREPARED BY RICK LILLA, MEDIA LIBRARIAN

Periodicals

[Campus Technology](#) (formerly known as *Syllabus*)

Campus Technology is the only monthly publication focusing exclusively on the use of technology across all areas of higher education. *Campus Technology* provides in-depth, aggressive coverage of specific technologies, their uses and implementations, including enterprise resource planning; eLearning and course management systems; presentation technologies; communication, portal, and security solutions - all the important issues and trends for campus IT decision makers. Launched in October, 2004, *Campus Technology* replaced the highly respected *Syllabus* magazine, a recognized leader in the coverage of technology on campus since 1988. *Campus Technology* will continue to uphold *Syllabus'* mission of serving as a complete resource for academic and administrative IT leaders in higher education, and will provide in-depth coverage of specific technologies, their uses and implementations on campus. (From *Campus Technology* home page)

[Educause Review](#)

EDUCAUSE: a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology.

[AACE Journal: International Forum on Information Technology in Education](#)

The *AACE Journal* (AACEJ), originally a print journal entitled *Educational Technology Review* (ETR), has been transformed into an online publication to not only increase timeliness of content but also to enhance every issue with the current and future electronic resources and tools available on the Association for the Advancement of Computing in Education (AACE) [website](#). AACEJ provides a multidisciplinary forum and focal point for AACE members to exchange information between disciplines, educational levels, and information technologies.

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Web sites

[Colleges & Universities with Laptop or Notebook Computer Initiatives](#)

[The Original Laptop "U" - Crookston, Minnesota](#)

[Valley City State University's Notebook Initiative](#)

[1] This cost is a rough estimate based on research conducted by the author. The hidden costs, such as the labor for the wiring, networking, and other infrastructure, have not been calculated due to difficulty. Note, also, that the largest cost may be the technology certificate, depending on how UCC approves its being incorporated.