

# **A CASE IN ACADEMIC TECHNOLOGY PLANNING**

Elizabeth A. Regan  
Professor and Chair, Department of Information Systems  
Morehead State University  
Morehead, KY, 40351, U.S.A.  
[e.regan@moreheadstate.edu](mailto:e.regan@moreheadstate.edu)

Category: Research in Progress

Keywords: Technology planning; innovation, adoption and diffusion of information technology;  
systemic change; academic technology plans

## A CASE IN ACADEMIC TECHNOLOGY PLANNING

*This action research project addressed academic technology needs at a regional comprehensive university of approximately 9500 students. Like most universities, its technology planning process addressed primarily technology infrastructure rather than curriculum and classroom needs. In fact, when the university decided to undertake an initiative to develop academic technology plans, no existing models could be identified. The decision to create academic technology plans was an outcome of a five year initiative to integrate technology across the curriculum, funded in part by a U.S. Department of Education PT<sup>3</sup> grant. As classroom use of technology grew, the need for a systematic process for identifying and addressing academic technology needs related to curriculum and program objectives became increasingly apparent. The suggestion of creating college academic technology plans was first proposed by the Dean of the College of Humanities. With assistance from a national consultant, the planning process engaged academic leaders and faculty in dialogue about instructional use of technology. The completed college plans are now being consolidated into a University-wide strategic plan, which will become the foundation for establishing direction and setting funding priorities for classroom technology, instructional support, and professional development. This paper discussed the objectives, procedures, and outcomes of the planning process.*

### INTRODUCTION

This project addressed academic technology needs at a regional comprehensive university of approximately 9500 students. Like most universities, it has a well-established planning process for

technology infrastructure. In fact, the university was well recognized in the state for its proactive use of information technology, being a leader in putting a PC on every faculty desktop, offering online instruction, online registration, Internet student self-service, and other innovations. Nonetheless, no systematic process was in place for addressing the growing diversity of academic technology needs. As the university encouraged faculty to integrate technology into teaching and learning, the Provost concluded that a more effective way was needed to give faculty a voice in the technology planning process. Moreover, it became evident that to address these needs, it was essential to document them in a way that would bring them into the strategic planning and budgeting process. The report follows an action research model, describing the problem analysis, solution design, implementation, evaluation, and next steps used by the university to implement academic technology planning.

## PROBLEM ANALYSIS

The need for academic technology planning surfaced out of many conversations with faculty about the use of technology in education over the past several years. Prior efforts at planning and allocating resources for academic use of technology on campus had minimal impact. A Technology Resource Committee, with representation from every department on campus, proved largely ineffective. Faculty awareness and use of available resources on campus, which were dispersed, uncoordinated, and generally under-funded, were relatively low. A campus task force made recommendations for improving instructional support, but no action had yet been taken to implement them. The university had an effective strategic planning process, but its academic program planning process did not address technology planning. As an outgrowth of the university's PT<sup>3</sup> Preparing Tomorrow's Teachers to Use Technology grant initiative to integrate technology across the curriculum, faculty use of technology increased significantly. The demands for technology labs, multi-media instructional

stations, PC projectors, SmartBoards, and academic software across campus mushroomed. Like most universities, it was doing a much better job at providing the hardware than the software and support essential to effective academic use of technology. Other than the campus network, basic desktop platform, and students PC labs and classrooms, few budget dollars were allocated to meet the growing demands for software and support. Most academic technology was purchased through grants, department dollars, or special funds. While some areas had abundant technology—sometimes not well used—others lacked for technology. No systematic process was in place for prioritizing and budgeting for these needs or addressing other issues related to integrating technology into instruction. In fact, the needs and issues were not even well identified or understood.

In the absence of clear academic goals and needs, technology decisions were driven primarily by technical issues. Although this approach served the university reasonably well in the past, the growing prevalence of technology use in almost every discipline has placed unprecedented demands on the institution to become more high tech and integrate technology into instruction across the curriculum. At the same time possible directions and options available today are expanding exponentially. It became increasingly evident that a better way of identifying and establishing priorities was essential. The expense involved makes it essential to pick and choose carefully. We needed to more explicitly define and justify the needs of academic computing (hardware, software, technical support, and professional development) to provide a solid foundation for making decisions. Understanding the academic needs (what is important to faculty and academic programs and why) is critical to making wise technology decisions. Also, from a University budgeting perspective, efficiency and effectiveness in meeting needs were essential. The Provost wanted to provide more effective, timely, and responsive support for faculty use of technology, and also to encourage more

faculty to think about the opportunities technology provides to enrich instruction, empower learners, and improve learning. The opportunities are not necessarily apparent to faculty; in fact, for many faculty technology on the surface is seen as a poor substitute for effective face-to-face teaching. Since many faculty never experienced technology as an integral component of their own learning environments, they are not inclined to incorporate it as an essential element of their own teaching. Our institution's experience with its \$1.4 million PT<sup>3</sup> grant for integrating technology across the curriculum taught us that effective use of instructional technology—like most technology—is transformational in nature. That is, it leads to new and different ways of doing things. Achieving the necessary changes in both individual behavior and institutional practice requires viewing long-standing practice through new lenses—a true paradigm shift, if you will.

It's important to emphasize, however, that the goal was not to involve faculty in developing technology solutions, but rather to identify their academic needs and priorities: Then, departments could partner with the university Office of Information Technology in identifying and developing appropriate solutions.

## SOLUTION DESIGN

To address this problem, the University decided to take an innovative approach by engaging faculty in developing college level Academic Technology Plans (ATP). The idea was first proposed by the Dean of the College of Humanities. To assist in the process, the University contracted a national consulting firm. Since no existing models could be identified, the University worked with the consultants to develop a planning process and prototype plan to meet the project goals.

The Provost appointed the Chair of the Department of Information Systems, who had also served as a co-director of the University's PT<sup>3</sup> grant, as the internal leader for the process. Selection of an outside consulting firm was the first order of business. To kick off the initiative, the consultants conducted a meeting with the Provost, Vice President for Planning and Technology, Deans, and Directors of Academic Units to gain a better understanding of their goals collectively and individually for the process.

The focus of the academic technology plan was on curriculum needs – student outcomes NOT technology infrastructure. What did the colleges and departments want to achieve in the areas of:

- Curriculum and learning outcomes
- Classroom environment
- Student advising and services
- Department administration
- Research

The ultimate goal was to consolidate the individual college level plans into a University-wide strategic plan, which would become the foundation for establishing direction and setting funding priorities for classroom technology, instructional support, and professional development. The plans also would become the foundation for the Office of Information Technology to forecast future hardware and software requirements and to establish direction and priorities for expansion of the university technology and networking infrastructure. It was hoped that, among other things, the ATP would put the Provost in a better position to be an advocate in the strategic planning and budgeting process at University and State levels to address technology needs.

The planning process for the development of the Academic Technology Plans (ATP) was viewed as the beginning of an important conversation. We wanted the process to create a forum for thoughtful conversation about what difference technology could/should make in our classrooms; and most importantly, to be able to do something about it. Therefore, we wanted the process to:

- Allow for high level involvement among faculty and staff within each unit.
- Allow for meaningful dialogue and reflection.
- Be open to participation by everyone who has an interest.

A faculty or staff member from each college or unit was designated to provide leadership in this initiative. These writing team leaders helped facilitate the planning process at the college or unit and served as the primary contact in working directly with the consulting staff. A subcommittee or writing team was established for each unit as well. All faculty and staff were given the opportunity to provide input and feedback in the development of the plans (e.g., through focus groups, surveys). A Website was established to share information, monitor progress, and encourage input and dialogue.

The University established a two-pronged approach to the process of developing the Academic Technology Plans.

- The first prong in the approach was for each college and academic unit to conduct an analysis of the current technology situation in its respective unit. This was achieved by conducting a SWOT analysis to identify Strengths, Weaknesses, Opportunities, and Threats.

- Once each unit established an understanding of its technology status, the second prong in the approach was the actual development of the academic technology plan.

Templates were provided as a framework to guide the process and provide a basic level of continuity across the university to facilitate consolidating the plans and identifying common needs and priorities. It was anticipated that although each discipline would have its unique needs, that many themes and needs would emerge that were common across all or most disciplines. It was expected that addressing these common needs on a university-wide level and incorporating them into the strategic planning and budgeting process would provide increased resources and be more efficient and cost effective. At the same time, it was hoped that a better understanding of the unique discipline needs would lead to more effective avenues for funding and supporting these needs as well.

To initiate the planning process in each academic unit, the consultants met with the Dean, writing team, and other interested faculty or staff. Prior to these kick-off meetings, the Vice President for Planning and Technology and the Chair of the Department of Information Systems also met with the Faculty Senate to explain the goals of the academic technology planning process and answer questions about the process and intended outcomes. Throughout the process, the consultants worked closely with the deans and other academic unit heads to ensure that the process fit their needs.

The SWOT analysis was intended to allow for the exploration of the Strengths, Weaknesses, Opportunities, and Threats for each academic college and unit. Each unit was asked to be inclusive of both internal and external factors that might affect academic technology and allow them to identify

weaknesses in the system as well as opportunities to help minimize these limitations. They were instructed to be as specific as possible in responding to these areas, so that measurable goals and objectives could then be developed. Guiding questions were provided to assist in the SWOT analysis, as well as a template that could be used to summarize the results. The questions and template were intended as a guideline and units were not limited by these suggestions.

Once the SWOT analysis was completed, units were ready to begin formulating their plans. The Academic Technology Plans are designed to support the university and college missions, as well as the implementation of strategic plans. Additionally, academic units were asked to address the following issues:

- discipline-specific directions;
- trends in the use of technology (e.g., current best practices for a specific discipline, associations related to the integration of technology in instruction, benchmarks for excellence in a specific field); and
- faculty activities (e.g., academic advising, college and department level administrative support within the college/unit).

The following sections were included in the development of the Academic Technology Plans:

- Vision Statement
- Goals
- Objectives
- Strategies/Activities
- Responsibility/Leadership

- Time Line for Completion
- Assessment of Outcomes
- Sources of Information

The technology plan template consisted of two sections: (1) an Outline and (2) a Worksheet. In the first section, the Outline, each college and unit articulated their vision statement, goals, and objectives. The number of goals and objectives may vary according to the needs of the academic unit. Units were encouraged to prioritize and focus on their most important goals and objectives. They were also encouraged to formulate goals in terms of desired student outcomes or curriculum goals. (See inset for a couple of examples.)

The second part of the template, the Worksheet, was used to address each goal and objective individually, and include strategies and activities to address each objective, the individual responsible for providing leadership for each activity, time line for completion, assessment of outcomes, and sources of information (Appendix A). If there were several objectives for each goal, a separate worksheet was completed for each objective. The template was provided to each college and unit electronically. Additionally, documents, examples, and other helpful resources were posted on the university Intranet for everyone's convenience. The consultants monitored progress and provided guidance and feedback as the plans were developed.

## **Examples of Objectives and Activities Relating Technology to Instruction Outcomes**

### **College of Education**

Goal 1: Expand the existing focused technology initiatives so that students will be trained to use discipline-specific technologies in each discipline.

Objective 1: Improve students' skills in working with the latest instructional hardware and software which they may encounter in public school classrooms.

Activity 1: Acquire, install, and incorporate into instruction the latest versions of software for working with special needs students in model classrooms. (Approximately 40 programs.)

Activity 2: Upgrade Intelkeys hardware and accompanying Intellitools software.

### **College of Science and Technology – Psychology Department**

Goal 4: (College GOAL 1): Faculty and students should be familiar with the most important forms of equipment and instrumentation within each of the major sub-areas of psychology.

Objective 1: Equip all laboratories in the Psychology Department with modern essential instrumentation.

Activity 1: Representative equipment needs include: projection microscope; basic physiological measurement equipment for heart rate/EEG, GSR, eye movement, and blood pressure; video cameras; audio recording equipment; experience-sampling palmtops and beepers.

Activity 2: To procure these items: provide incentives for acquiring external funding for equipment purchases; expand endowments for equipment purchases; increase equipment purchases as a budget priority

## IMPLEMENTATION

Overall the academic technology planning process has produced excellent results, and represents a giant step forward in positioning the Provost and University to better understand and document academic technology needs and address them in a systematic way. In reviewing the plans, a number of common themes were identified for consideration by the university administration in developing the university-level Academic Technology Plan. Common themes included a variety of communication, support, training, and infrastructure issues.

As the academic technology planning process was getting underway, the President announced plans to implement a wireless campus network and begin requiring all students to purchase a laptop

computer. With this new initiative, the need for better academic planning immediately became even more pressing. Most faculty, staff and students were very supportive of this new initiative although a few raised issues about the timing of the decision and the lack of faculty participation in the decision making.

## EVALUATION

Lessons Learned: As one might expect for an initial effort, the plans varied in detail, specificity, vision, and their effectiveness in articulating the link between technology and instructional goals. Although all interested faculty were invited to contribute, the level of faculty involvement was not as high as we would like to have seen. This is attributable in part to relatively short timelines (2 months). However, additional opportunities will be provided. It is anticipated that as the process moves forward and faculty begin to see results, the level of involvement will increase. The plans are intended to be a work in progress that will continue to evolve and grow as faculty gain experience and insight into ways in which technology can enhance teaching and learning. One area we especially hope to see more explicitly articulated is the link between academic program objectives and how the technology is expected to contribute to meeting them. An important lesson learned is that systemic change takes time because, in the end, it is a learning process that requires significant changes in behavior. Overall, the Provost was very pleased with the outcome and is ready to move ahead with consolidating the results into a university-wide strategic plan.

## NEXT STEPS

The Provost has appointed a Task Force with representation from each college and academic unit to develop the University Academic Technology Strategic Plan. Work on this process is well underway

as this report goes to press. This plan, which is targeted for completion by March 1, 2005, will identify and prioritize issues and needs based on the individual college and unit plans and make recommendations for action to the Provost. The plan is not intended to create a detailed summary of the individual plans. Rather, it will essentially attempt to answer the question “What does the University need to do (provide) in terms of resources and support in order to empower the colleges and other academic units to achieve their plans?” The plan will include a vision for academic use of technology, a statement of objectives and desired outcomes, common themes and needs across campus to support the effective integration of technology in academic programs, and a proposal for organizing technical support and professional development for faculty and other academic staff. It also will attempt to address issues of strategic priorities and funding.

At the same time, each college will provide a forum for the consultants to report back to all interested faculty on the results planning process and provide opportunity for additional discussion. If desired, colleges will update or expand their plans.

## DISCUSSION

Like it or not, the world of higher education is changing. Institutions are under unprecedented pressure to do more with less and to meet the needs of a more diverse society. Demands for accountability to legislators, accrediting bodies, and higher education’s many constituencies are increasing. Most students entering today’s university have never known life without computers. The impact of technology and global networks is broad and deep. Meeting these changing needs and expectations requires systemic change. The challenges are enormous as institutions strive to preserve the values and integrity of higher education while remaining competitive and financially viable in the

educational marketplace. Integrating technology across the curriculum is an essential component in meeting these challenges. This case study offers an innovative model for involving faculty more directly in setting directions and priorities for academic use of technology and to bring these needs into the institutional strategic planning and budgeting process.