

One Size Does Not Fit All:

TWO MODELS FOR SUPPORT AND TRAINING

The University of Virginia and the College of William and Mary successfully employ two very different models in confronting IT challenges

Institutions of higher education face unprecedented challenges in providing effective computing support and training to their communities. Admittedly, fulfilling the technology needs of a large, geographically diverse population seems a daunting task. IT organizations contribute to the teaching and learning mission while simultaneously supporting complex and very visible administrative operations.

Two public institutions in Virginia, the University of Virginia and the College of William and Mary, have successfully confronted these challenges, but using strikingly different techniques.

This article, which grew out of a panel presentation at EDUCAUSE 2000 in Nashville, proceeds in three parts. First, to highlight similarities and differences between our institutions, we summarize important characteristics of each. Next, we describe the support and training models in place at each university. Real-life sce-

narios clarify how the models work on a day-to-day basis. Finally, we describe why these models have succeeded.

Comparing Institutions

The University of Virginia and the College of William and Mary are both public institutions with long traditions of excellence. Both are predominantly residential and seek to foster close interaction among students and teachers. Both recognize the importance of providing support staff with the specialized skills to work effectively with the artists, scientists, and scholars who make up the faculty of the modern research university. Both have made a substantial commitment to technical training and development by building professional support teams that provide direct training, counseling, and distributed learning materials.

The University of Virginia is moderately sized, with 10 professional graduate programs. It combines the commitment to undergraduate education of a

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small liberal arts college with the resources of a nationally-recognized research institution. The College of William and Mary emphasizes its undergraduate liberal arts curriculum and demonstrates the strength of a small university by focusing on select programs of advanced study. It is less than half the size of the University of Virginia.

Table 1 summarizes key statistics for the University of Virginia and the College of William and Mary. In addition, both universities are state supported, and both IT organizations

- Support academic and administrative computing
- Support all platforms and any machine
- Support telecommunications
- Provide technical training and a central help desk
- Have introduced standard equipment replacement programs

The Two Models of Support

The fundamental difference between the two models is relatively clear: In the decentralized model at the University of Virginia, many technical support staff work directly for, and report to, the departments, but receive training and support through the central IT organization. In William and Mary's model, the departmental liaisons report to the central IT staff and are assigned without charge to support specific departments or programs.

The University of Virginia Model

The distributed support model used at the University of Virginia relies on an active partnership involving several initiatives.

Local Support Partners. In 1996 the IT leadership at the University of Virginia realized that while it couldn't do more with less, it could possibly do more with the same. Instead of a central IT organization providing all technical support to departments, departments now construct their own support structures, staffed by departmental technical support professionals.

In this distributed support model, departments hire their own technical support staff, rather than requesting day-to-day technical support from the central IT department. By working in and reporting directly to academic or administrative departments, these individuals, referred to as Local Support Partners (LSPs), become specialists in their particular computing environments and thereby increase their intrinsic value to the departments they serve.

The LSP Program allies the Information Technology and Communication (ITC) department with the computing professionals serving departments throughout the university, and is an element of ITC's Departmental Computing Support (DCS) Program. LSPs obtain the tools critical for success in their departmental computing roles through certification-directed training, high-level access to ITC resources and services, and regular liaison activities.

LSPs come from many backgrounds, from seasoned technical professionals with computer science training to departmental staff showing a strong aptitude for things technical. ITC's DCS team and many other ITC support resources are available to assist with IT needs and problems as they arise within LSPs' departments.

Monthly meetings bring together groups of LSPs with similar departmental concerns, with topics targeted to each group's training and support needs. Semi-annual LSP conferences provide a forum for information sharing and training that applies to all LSPs. Special training opportunities on new network tools, applications, operating systems, and other deployments are routinely offered to LSPs. Two certification programs, for Local Training Partners and Local Support Associates (described below), provide LSPs with training skills and additional staffing for technical support needs.

Finally, an ITC service offers technology needs assessments and planning advice to departments, and a university-wide program supports standards for hardware and software.

Local Support Associates. While the

responsibility for providing front-line computing support belongs to the LSPs, they cannot always be the first point of contact when a problem arises. This situation frequently occurs in departments where LSPs support large numbers of users and in departments that do not have LSPs. In both cases, users frequently turn to the most accessible staff members — those across the hall or in the office next door — to resolve computer-related problems.

To address this need, the university established the Local Support Associate (LSA) Program. This program allows LSPs to identify and provide additional training to the users who assist them in day-to-day computing support. (ITC's DCS team identifies LSA candidates in smaller departments that don't have funding for LSPs.) LSA candidates complete a certification program, Computing Survival Skills, which consists of 18 hours of training on basic troubleshooting.

Local Training Partners. LSPs who regularly train their departmental users are supported through the Local Training Partner (LTP) Program, a network of professionals around the university whose responsibilities include technical training. LTPs complete certification through the Training of Technical Trainers Program. The LTP program began with LSPs, but has expanded to include others tasked with technical training duties.

Technology Planning and Outreach.

This program assists schools and departments in developing technology plans that support their missions and align with the university's long-term technology goals. A technology needs assessment reviews the current technology and provides recommendations for future action. The DCS team assists departments in finding solutions to technology obstacles, helps them develop a technology plan, and assists with the plan's implementation.

Desktop Computing Initiative. The Desktop Computing Initiative (DCI)

Table 1**Institution Statistics at a Glance**

	University of Virginia	College of William and Mary
Schools and Programs	10	5
Students	18,000	7,500
Staff	9,000	1,200
Faculty (Instructional)	2,100	600
Total Customer Base	30,000	9,500
Central IT Staff	240	80

program exemplifies the successful collaboration between local support personnel and central IT. This voluntary, university-wide program is designed to curb the total cost of owning computers and to increase the efficiency and effectiveness of support for personal computing at the university. Program goals include easing the generic computing support burden in order to focus on a higher value support, improving sharing of electronic documents, fostering faculty-student collaboration and development of instructional materials, standardizing replacement cycles and the annual budget process, and reducing the use of out-of-date computers.

College of William and Mary Model

The IT staff at William and Mary also found themselves in a support crisis by the middle of the 1990s. Under the leadership of a new associate provost, the IT organization embarked on a far-reaching reorganization to focus staff and budget resources more effectively on the institution's academic mission. This reorganization plan had five key components:

- Provide departments and schools with Senior Departmental Liaisons to strengthen communication.
- Create a central training organization with adequate staff to help members of the college community become more proficient in the use of technology.
- Enhance the existing help desk to cre-

ate a well-funded, fully staffed, and highly trained professional support center.

- Develop commitment to a set of core values that would guide all IT staff.
- Invest in a more robust, reliable infrastructure that would free departments from having to run their own servers and systems.

Senior Departmental Liaisons. These liaisons report to IT, but work from offices near the academic department clusters they support. Although technically proficient, departmental liaisons' success depends mainly on interpersonal communication and customer relations skills. Academic departmental liaisons each serve approximately 100 faculty and staff, developing a detailed knowledge of their clients' teaching needs and research agendas, use of productivity software, and overall comfort with technology. Liaisons use their knowledge of faculty goals to help their clients navigate the complexity of the technology landscape and to help IT support professionals develop better products and support services.

Team assignments and project work assist departmental liaisons in building the knowledge and personal relationships necessary to support their departments. Each liaison works on at least one IT project each semester that requires close collaboration with IT support professionals from other teams, such as the lab/classroom support team, programming, telecommunications, or

networking. In addition, most work on at least one cross-functional project that involves clients outside of IT, such as the library, residence life office, admissions office, or one of the deans' offices.

The IT Learning Team. This team assesses learning needs, defines desired learning outcomes, and deploys resources for different learning styles, including instructor-led workshops, personal coaching, and technology-based training. The team is organized on a model of adult learning designed to help members of the university community become more self-reliant in managing their own learning. The team's initiatives closely align with learning needs identified and documented by the departmental liaisons.

The Technology Support Center. The TSC — the college's help desk — tracks technical problems, dispatches hardware and software technicians, and maintains central online services such as Web-based support and software repositories. Staff members with strong technical troubleshooting and systems or network engineering skills were transferred to the TSC and provided with customer service and communication training to increase their professionalism and responsiveness. Departmental liaisons have access to the electronic calendars of senior technicians and can schedule follow-up service calls for their clients in real time.

Develop and Maintain Core Values. Long-term success in this support model required a considerable investment of time and energy in creating a shared vision of IT. These goals have been pursued through initiatives that forced both new and experienced employees to work together in areas like project management training, customer service, and Fall Startup projects.

Continually Refine the Infrastructure. No matter how good the customer training and support are, IT support depends largely on the tangible components — the wires, servers, printers, and storage devices that let customers do

their work. A key component of success is plenty of communication among the liaisons who work with customers and the engineers who design the physical infrastructure.

Scenarios

The following scenarios demonstrate how support and training work at each institution. Each scenario describes a real-world problem, followed by each institution's probable or actual solution.

Scenario 1: **Converting a Database**

Doug is a technical support professional for the History department. About a year ago, he designed a Paradox database for a faculty member's research data. For the past 12 months, a graduate research assistant has entered and manipulated data for the research project. Now, a collaborator at another university insists that the database be converted to Microsoft Access. Doug has never used Microsoft Access. (Both responses to this scenario are probable, but are based on actions taken in similar situations.)

University of Virginia: As a long-term solution that would also benefit Doug's professional development, ITC offers instructor-led workshops on Access. For a more immediate answer, as part of the LSP program Doug could post a request for help to e-mail lists in which LSPs actively participate and also to a database special interest group made up of LSPs and ITC staff. For answers to more complex conversion issues, he can take advantage of the locally installed version of Microsoft Technet provided as an LSP resource. In addition to these special services for LSPs, several other resources are available to all members of the university. If the help desk can't meet Doug's need, he would be referred to the Desktop Computing Group, which has staff with database experience. On behalf of his faculty member, Doug could contact the Research Computing Support Center, which provides help to faculty seeking

to integrate technology into their research.

College of William and Mary: If Doug isn't proficient in using MS Access software or has never done a conversion from Paradox to Access, he can contact a consultant from the IT Learning Team to support the conversion. Working with the consultant, Doug, the faculty member, and the graduate student will convert the data. The conversion thus becomes a learning experience. The data is converted by an experienced person, the liaison receives training in database conversions, and the college collaborates with another university. For future needs, the IT Learning Team provides online resources for MS Access, available to departmental liaisons, faculty, and staff. Also, the IT Learning Team regularly offers MS Access workshops.

Scenario 2: **Deploying Windows 2000**

Following wide publicity of the benefits of Windows 2000, faculty, staff, and students ask when conversion to the new operating system will take place. (Both institutions have recently faced this situation. What follows are the actual responses of each organization.)

University of Virginia: Cross-divisional projects (CDPs) test new services in various environments and assess costs, capabilities, impacts on and risks to the user community, and design plans for maintenance. The Windows 2000 CDP was created to address such issues, raised by conversion to the new operating system. As the central computing organization, ITC isn't necessarily the first to adopt a new operating system — other pockets of the university have probably moved earlier. ITC invited LSPs from those cutting-edge departments to participate in the CDP, even though their problems deploying to a small group differed somewhat from those of a university-wide deployment. Various groups within ITC also participated in the CDP.

The Windows 2000 CDP identified

potential problems with the rollout, and provided education and resources to technical professionals and users on implementation, marketing, and advantages/disadvantages of installation and use of the new operating system. Training sponsored by the CDP included knowledge exchanges, brown bag lunches, demonstrations, vendor presentations, and recommendations for outside workshops. ITC also offered its user community a no-cost, preconfigured Windows 2000 desktop build configured to work securely in the University of Virginia network environment.

College of William and Mary: IT already had devoted a significant amount of effort to establish and broaden the scope and service of a Windows NT networking structure. To deploy the new operating system, IT created the Windows 2000 Cross-Functional Project Team. The team immediately identified Windows 2000 testers throughout the campus. These testers received a brief orientation to the new operating system and attended a meeting one week after installation to discuss any issues that had arisen. Next, the project team created documentation and linked it to the IT Learning Web site to let the community know what to expect with this new operating system.

A date was set for the College of William and Mary to start using Windows 2000 Professional, and a statement was issued that it would be the preferred operating system at the college. The launch was coordinated through the project team, and benefits to the community were publicized. Following that, configuration standards were defined, including application locations and configurations, which included making sure that leased computers used Windows 2000. A discount applied to upgrades within three months of the implementation date, while all upgrades after the three-month cut-off had to be Windows 2000. Finally, the team upgraded faculty and staff desktops in the order previously decided.

Scenario 3: Using MS PowerPoint in the Classroom

Although a little skeptical of technology, a professor thinks her teaching might be enhanced by using PowerPoint presentations during her lectures. She has never used PowerPoint and has asked her department's technical support professional, Betsy, about the logistics of getting a computer and projector into a classroom. (Both responses to this scenario are probable, but are based on actions taken in similar situations.)

University of Virginia: The provost and ITC have teamed up on an aggressive schedule for making technology available in classrooms, with 56 technology-enabled classrooms by the fall of 2001 and five more to be added in 2001–2002. Betsy should direct the professor to contact the registrar to reserve a technology-enabled classroom for either a single class session or her entire course. If they are in a participating department, Betsy can enlist the support of the department's Teaching and Technology Support Professional (TTSP) to get the professor up to speed on PowerPoint. Another resource, the Robertson Media Center, is designed to provide assistance to faculty for requests to integrate technology with instruction.

If the department has an LTP or LSA, Betsy can steer the professor to them for training in PowerPoint. Another resource for PowerPoint training might be the joint faculty training initiative between the library and ITC. ITC also offers instructor-led workshops on PowerPoint.

College of William and Mary: Located within the academic departments they serve, departmental liaisons are experts at integrating technology into the classroom. The professor would talk with her liaison about her desire to use PowerPoint. A liaison has knowledge of the disciplines in various academic departments and could recommend different ways to use presentation software to enhance teaching and learning. Further, the

liaison has access to all of the resources the professor will need to succeed.

First, the liaison might offer to help a faculty member enroll in a PowerPoint workshop offered by the Learning Team. Next, the liaison consults with the professor about the particular curriculum and the opportunities for using PowerPoint. Finally, the liaison will either secure a technology-enhanced classroom or the computer and projection equipment needed.

Scenario 4: Troubleshooting Computer Hardware

Chuck calls the help desk because his monitor is not working. His department participates in the standardized desktop replacement program. (Both responses to this scenario are probable, but are based on actions taken in similar situations.)

University of Virginia: After obtaining the service tag number and specific problem report for Chuck's machine, Otto, the help desk professional answering this call, refers Chuck to the on-site hardware service center. Staff there will arrange with Chuck to service or replace the monitor. If Chuck's department did not participate in the desktop replacement program, he would be referred to the original manufacturer or an outside vendor for the repair.

College of William and Mary: If Chuck is in a department served by an IT departmental liaison, he should contact his liaison for some initial troubleshooting. If service or replacement of the monitor are needed, the liaison will work with the Technology Support Center, whose IT employees are vendor-certified. They will work with the Equipment Service Program vendor to replace the monitor.

Comparison of Success Factors

Several factors affect the success of the two models: inclusion, which facilitates communication and participation; staff structure; recruitment

and retention tools; and approaches to budget issues. Here we compare the implementation of these factors at the University of Virginia and the College of William and Mary.

Inclusion

The University of Virginia has addressed inclusion in the following ways:

- Involving ITC's most vocal critics in the planning process and continuing evolution of departmental support programs has led to widespread acceptance of the programs.
- While no formal Human Resources recognition of these technical constituency groups has yet appeared, higher management recognizes the groups, especially LSPs, when making strategic decisions.
- ITC includes LSP representatives on cross-divisional project teams and new product rollout planning and implementation.

The College of William and Mary employs the following methods:

- Staff are hired by and report to the central IT organization, but annual evaluation is based on successful customer relationship management.
- Meetings, both formal and informal, as well as cross-functional project teams, keep technical staff informed about central IT goals and in contact with each other.
- Departmental liaisons play a major role in designing the college's technology infrastructure and have incorporated suggestions from both supporters and critics of the central IT organization. Proactive understanding and response to department problems by IT has turned some of the most vocal critics into supporters.

Staff Structure

The University of Virginia chose a distributed staffing approach.

- By leveraging existing staff resources, departments find they have qualified personnel who can assume a more technical role if they get either basic or additional technical training.

- Time freed up from basic computer maintenance permits accomplishing more discipline-specific work in academic departments. For example, LSPs and LSAs can spend more time helping faculty incorporate instructional technology into classroom teaching.

The College of William and Mary chose to keep a centralized IT staff.

- Staff occupy the same organizational level and have similar job responsibilities — senior departmental liaison or learning consultant.
- The central IT organization has the flexibility to adjust assignments and responsibilities to take advantage of changing circumstances or new opportunities.
- Staff come from a variety of backgrounds, although most have advanced degrees or advanced training in the specialties they support.

Recruitment and Retention Tools

The University of Virginia promotes its IT support programs to boost recruitment of top professionals.

- The university has used the LSP program as a recruitment tool for attracting highly qualified technical professionals. Opportunities for continued technical training, as well as a network of peers, appeal to good candidates for LSP positions.
- The central IT organization has been invited to help identify areas of training and skills required by LSP-type positions as part of a new state employee classification plan. This invitation came about largely because of the LSP program's success and recognition.

The College of William and Mary stresses opportunities for people outside the typical IT track.

- Centrally administered learning tracks recognize increased technical competence attained through workshop attendance, individual learning, and personal coaching.
- The departmental liaison program allows the college to attract individuals with a strong interest in technology from career tracks outside of

IT, greatly increasing the diversity and creativeness of responses to IT problems.

Dealing with Budget Issues

The University of Virginia educates departments on the importance of budget support for IT purposes, as follows:

- The Departmental Computing Support team works with departmental leadership to help them understand the importance of budgeting for technical support positions.
- The Desktop Computing Initiative program raises awareness of the need for departments to include equipment replacement funding as a standard yearly budget item. The program's lease component helps break the cost of replacement machines into equal amounts each year, instead of an extraordinary expenditure every two or three years.

The College of William and Mary brings departmental and replacement cycle factors into the budgeting process.

- Substantial input from liaisons and training teams goes into the college's budget planning process.
- The Equipment Service Program helps create standardized replacement cycles and also simplifies desktop support.

Indicators of Success and Lessons Learned

The support models used at the University of Virginia and the College of William and Mary emerged in response to each institution's distinctive characteristics. However, looking beyond the differences, common factors emerge that contribute to both models' success.

- The support model must make clear, effective communication a central mission of technical staff.
- Effective support structures should achieve a balance of staff who demonstrate interest in using technology in higher education for academic and general computing needs, and those who identify with the specialties they support.
- Support structures should provide

ongoing challenges, opportunities for growth, and professional recognition to assist in recruiting and retaining the best IT talent.

- Building a long-term support organization requires continual attention to and investment in training, allowing for the identification of staff learning needs and flexible means for addressing them.
- Both centralized and decentralized models must have mechanisms in place to assist schools and departments in planning and budgeting for the required infrastructure to support expanded needs for technology.
- A key component of both models is the commitment to communication and networking among the technical support staff operating in a distributed environment. Activities and events, e-mail lists, training courses, and social activities combined with cross-functional projects maximize interpersonal communication and networking.
- To the degree possible in the modern research university, effective support requires IT to create standardized replacement cycles, desktop images, and shared resources, such as those in the Desktop Computing Initiative at the University of Virginia and the Equipment Service Project at the College of William and Mary.

Developing an effective computing support and training structure requires creativity and sensitivity to the culture and history of the institution. There is no single solution to these challenges, but we hope the models described provide tools that can be adapted to the needs of other higher education institutions. *e*

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