Distributed Learning:

New Challenges and Opportunities for Institutional Leadership

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Distributed Learning:

New Challenges and Opportunities for Institutional Leadership

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Foreword

Distributed Learning: New Challenges and Opportunities for Institutional Leadership is the third monograph in a series of invited papers on distributed education commissioned by the American Council on Education (ACE) and EDUCAUSE.

This monograph focuses on the challenges that college and university leaders face as their institutions begin to engage in distributed learning. Institutional change through distributed learning can only occur when institutional leaders articulate a clear vision, provide resources, and encourage widespread collaboration throughout the institution. The paper examines why distributed learning poses a leadership challenge, reasons for adopting such a course of action, changing institutional leadership roles, an action agenda for leadership, and the support systems and functions necessary to achieve success.

The genesis of this series evolved from a design meeting held at ACE in spring 1999. Extensive discussion and exploration of major issues led to a partnership with EDUCAUSE and a close working relationship with its president, Brian L. Hawkins, and vice president, Carole A. Barone.

This series, *Distributed Education: Challenges, Choices, and a New Environment*, has been sustained with generous support from the AT&T Foundation, Accenture, and the Compaq Corporation.

"Distance" or "distributed" learning raises a strategic and financial challenge for every type of higher education institution. Advancements in technology and expansion of markets for distributed learning pose questions for college and university presidents, regardless of their institutional mission. Our goal in this series is to provide presidents, provosts, and other senior decision makers with a sense of the landscape of technologically mediated education and the means to make wise strategic choices.

Michael A. Baer
Senior Vice President, Programs & Analysis
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Introduction

As Dr. Alan Kay, computer science visionary and Walt Disney Fellow, remarked in 1971, "The best way to predict the future is to invent it" (1989). These inspirational words suggest that the decisions we make and the actions we take today can indeed influence the future.

As we emerge from a decade marked by broad and deep changes in academe–many resulting from the rapid development of networked information technology (IT)– the future toward which technology is propelling us may appear hazy. The challenge to institutional leadership remains the same today as it always has been: to become informed about the issues and challenges at hand and to chart a path to the future, not by following existing paths, but by inventing our own.

One of the most perplexing yet rewarding manifestations of technology in the academy is distributed learning;[1] its implications for transforming the way colleges and universities conduct their core academic business have been noted frequently in technology and educational literature. Yet most institutional leaders do not awake in the morning thinking about transforming their institutions through distributed learning. So, we might ask, is such transformation an articulated goal or simply a by-product of other processes? And if it is so widely discussed in the literature, why shouldn't it be an overt institutional goal?

Transformational change through distributed learning can occur only when institutional leaders articulate a clear, bold vision, demonstrate a broad understanding and acceptance of that view, apply a focused use of resources, and encourage widespread collaboration throughout the institution. True transformation occurs when change is so pervasive that it redefines individuals, institutions, or processes, and when the result of this change yields such significant benefits that the individuals, institutions, or processes do not voluntarily revert to the old ways.

This monograph, third in the ACE/EDUCAUSE series, *Distributed Education: Challenges, Choices, and a New Environment,* focuses on the challenges that college and university leaders face as their institutions begin to engage in distributed learning and the potentially transforming changes that lie along the way. We examine why engaging in distributed learning is a leadership challenge, reasons for adopting such a course of action, changing institutional leadership roles, an action agenda for leadership, and the support systems and functions necessary to achieve success.

Transformational change through distributed learning can occur only when institutional leaders articulate a clear, bold vision, demonstrate a broad understanding and acceptance of that view, apply a focused use of resources, and encourage widespread collaboration throughout the institution.

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[1] Distributed learning refers to technology-mediated instruction that serves students both "on and off campus, providing students with greater flexibility and eliminating time as a barrier to learning" (Oblinger, Barone, and Hawkins, 2001, p. 1).

Why Is Distributed Learning a Leadership Challenge?

Why has distributed learning become such an important matter that it commands the attention of senior institutional leaders? The answer is rooted in both technological and organizational history.

The Irresistible Force of the Web

Early extension and continuing education efforts focused primarily on correspondence courses, traveling faculty, instructional television, audio-conferencing, CD-ROMs, or combinations thereof. While these media have proven to be effective instructional tools that many students still use today, each has its own limitations in terms of content delivery, interactivity, and flexibility of time and place.

In contrast, the web's capabilities are ideal for education and collaboration. The web supports both synchronous and asynchronous delivery, permitting information access and communication whenever convenient. It integrates multiple Internet protocols, including e-mail, file transfer, and hypermedia, as well as multiple information formats including text, graphics, images, video, and sound. Inherently interactive, the web not only allows–but also requires–the user to select content and navigation paths. It supports online communities, allowing individuals from diverse locations to interact in a common information space. Most colleges and universities host numerous institutional web sites, and many are implementing web portals to enhance service delivery and communication with key constituencies.[2] Clearly, the web has become a force that is dramatically changing many areas of college and university life.

Organizational Implications

Extension services or departments of continuing education traditionally have taken responsibility for distance education efforts. Many of these efforts have been extremely successful, but their external focus has prevented them from being highly visible within the institution.

Today's distributed learning programs–namely, those that serve both on- and off-campus students, involve technology-based delivery systems, and require sophisticated faculty and course development support–require skills not commonly found within the typical extension unit, academic department, or IT organization. Assembling the breadth of expertise needed to develop and deliver

> Assembling the breadth of expertise needed to develop and deliver high-quality distributed learning programs often requires creating new organizational structures.

high-quality distributed learning programs often requires creating new organizational structures. However, a modified relationship between campus organizations that encompass program development and instructional technology is another way to develop and deliver high-quality distributed learning programs.

Distributed learning is now a leadership issue because instructional applications of technology are no longer the province of a few faculty pioneers. Faculty in all disciplines are using the web to enhance their courses. Without institutional leadership and systemic support, such efforts may vary widely in design, quality, cost, and effectiveness, perhaps resulting in questionable–or, at the least, highly varying–educational experiences for students. In order to make technology work for all students and faculty, the president must lead the campus in developing a systematic, comprehensive technology agenda to achieve institutional goals for student learning, productivity, and cost effectiveness.

Rationales for Becoming Involved with Distributed Learning

Every institution must address a number of questions before launching a distributed learning program, including:

- Should we become involved in distributed learning?
- What constituencies are we proposing to serve?
- Should we reach out to off-campus students, or should we use technology to create active learning situations for our on-campus students? Or does the nature of our mission and/or our audience require us to do both?

The president's job is to ensure that the campus asks and answers these questions and that the institution does not take on the burden and expense of distributed learning for the wrong reasons.

Some common, but questionable, rationales for engaging in distributed learning include:

- *Perceived competition*. The rapid adoption of distance education by traditional institutions, as well as the proliferation of commercial and corporate e-learning companies, may appear threatening. Unlike brick-and-mortar campuses, virtual universities do not observe boundaries or defined service areas. Institutions whose service areas or programs are threatened may choose to mount a distributed learning initiative as a defensive strategy. Even students at primarily residential institutions may turn to an institution offering classes that recognize the learning and technology preferences of today's students, rather than attend an institution that clings to more traditional forms of faculty-student engagement such as the large lecture hall.

- *Revenue*. The demand for education is global. The University of Phoenix and others have demonstrated that instruction can be profitably delivered to geographically diverse audiences. Institutions may look to distance education with the goal of developing a lucrative national or international market for their programs; however, increased revenue is far from guaranteed. The recent closures of several major distributed learning initiatives (for example, NYU Online, Virtual Temple, United States Open University, and the SUNY Buffalo online MBA) underscore the immaturity of the e-learning market and the risks that await the commercial online ventures of traditional institutions.

- *Faculty or student interest*. Faculty may wish to use the web and other technologies in their on-campus courses, either because of their own interests or because their students have encouraged them to do so. Faculty initiative is laudable, but such ventures may struggle to achieve success if they lack institutional support, standards, and infrastructure.

Some common, but questionable, rationales for engaging in distributed learning include:

- **Perceived competition**
- **Revenue**
- **Faculty or student interest**
- **Everyone else is doing it**

- *Everyone else is doing it*. Faculty and staff at a particular institution may believe that theirs is the only college or university not providing its students and alumni with distance education opportunities. Oblinger and Kidwell (2000) note that "higher education appears to be on the verge of getting caught up in a herd effect, with institutions all moving in the direction of developing online courses." If the train is leaving the station, where is it going? This, obviously, is the most risky motivation because its reactive nature may have little to do with the institution's strategic directions or goals.

Distributed learning requires such significant institutional commitments that it must carefully align with the institution's strategic plan, as well as its announced goals and directions. When planning for distributed learning, institutional leaders can take another, more strategic approach by considering three basic institutional imperatives: access, quality and accountability, and cost.

Access

The ability of distance education to move beyond a campus offers greater access to people who reside in areas not within close proximity to a postsecondary education institution. The asynchronous nature of distributed learning is highly suited to the lifestyles of busy students–especially those with family and job responsibilities–because it enables them to participate in class activities at convenient times. Changes in the workplace require most adults to continuously add or update skills throughout their working lives. Technology also can help institutions improve efficiency and productivity, which may in turn allow them to serve more students.

However, we must watch for barriers to access. Students who are challenged by physical, visual, or hearing disabilities may find the web, with its hyperlink navigation and rich multimedia content, frustrating and sometimes inaccessible. Likewise, some students may not be able to afford computer and Internet access. Lloyd Morrisett, former president of the Markle Foundation, identified a digital divide between what he called the information haves and have-nots (Morrisett, 1997). Institutional leaders, therefore, must carefully avoid denying online educational opportunities to those who most need them.

Quality and Accountability

Debate continues on the relative quality and effectiveness of distributed learning as compared to classroom-based learning. However, many campuses have shown that, with proper design and support for faculty and learners, distributed learning can yield improved student learning outcomes, both online and in the classroom. The ultimate quality question is not whether distributed education is "as good as" face-to-face instruction, but rather how technology can make instruction better. The first challenge in answering this question is to define "better."

Researchers at the University of Central Florida (UCF) have observed, during six years of analysis, that students enrolled in mixed-mode distributed education courses consistently obtain grades of A, B, or C at a rate of up to 6 percent higher than that of students in comparable face-to-face or fully online courses (Moskal & Dziuban, 2001). With UCF's growing enrollments, this improvement in student success is significant. Virginia Tech has shown similar enhancements in access and quality through its Math Emporium. Preliminary assessment data suggest that the Math Emporium is indeed helping improve student learning. Mathematics faculty are teaching 30 percent more students with 6 percent less budget, and mean scores in mathematics have risen by 17 percent while the

failure rate has dropped by 39 percent (National Learning Infrastructure Initiative Annual Meeting Notes, 1999). These levels of change have remained consistent in recent years. Institutions must determine quality standards for distributed learning, procedures for assessing and demonstrating quality to external constituents, and whether they can coordinate the necessary resources to implement a high-quality distributed learning program. Presidents must lead their institutions through these difficult discussions.

Luckily, a number of new resources are available to help campuses in this regard. Several leading organizations have developed quality standards and guidelines to address concerns regarding the rapid, unregulated growth of distributed learning. Examples of such guidelines include the Western Cooperative for Educational Telecommunications' *Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs* and the Southern Regional Education Board's *Electronic Campus Principles of Good Practice*.[3] In addition, under sponsorship from the National Education Association, the Institute for Higher Education Policy released a report in April 2000, *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education* (National Education Association, 2000). The study examined the distributed learning programs at six colleges and universities and listed 24 benchmarks considered essential to excellence in online distributed learning. Compliance with each of these benchmarks is voluntary; however, these guidelines provide a thorough set of measures that institutions can follow to ensure that their distributed learning programs adhere to commonly accepted best practices–practices that will lead to quality outcomes and that accrediting bodies will recognize.[4]

Cost

Although few institutions have chosen distributed learning solely to reduce instructional delivery costs, institutions can achieve significant cost reductions. The Pew Grant Program in Course Redesign has funded 30 projects designed to maintain or increase quality while reducing costs. Early results from this program suggest that institutions can yield cost savings as high as 86 percent (the average is 41 percent) through carefully designing and restructuring the resources required to provide high-quality learning environments.[5]

Of course, such cost savings are not immediate. Typically, an institution must make a significant upfront investment in hardware, software, and specialized technical personnel to make a large-scale distributed learning program work. The president and other senior leaders must determine whether these investments are worthwhile, evaluating the investments not only in terms of eventual cost savings but, more importantly, also in terms of the institution's mission and the likelihood that distributed learning will improve student learning.

Several leading organizations have developed quality standards and guidelines to address concerns regarding the rapid, unregulated growth of distributed learning.

[3] Available at http://www.wiche.edu/telecom/projects/balancing/principles.htm and http://www.electroniccampus.org/student/srecinfo/publications/principles.asp, respectively.

[4] For an excellent discussion on this topic, particularly the role of accreditation, see the second ACE/EDUCAUSE publication in this series, *Maintaining the Delicate Balance: Distance Learning, Higher Education Accreditation, and the Politics of Self-Regulation* by Judith S. Eaton, president of the Council for Higher Education Accreditation.

[5] A monograph by Carol Twigg that describes the Pew initiative, *Improving Learning & Reducing Costs: Redesigning Large-Enrollment Courses*, can be found at http://www.center.rpi.edu/PewSym/mono1.html.

A New Kind of Institutional Leadership

Distributed learning initiatives require a change in leadership role and a different leadership style. Leaders who desire such transformational changes in their institutions need to be more internally engaged in administration and more active in their leadership style. Leaders will need to take several specific steps to ensure a successful transition to distributed learning.

- *Be willing to use their influence and power with many different constituencies to move the agenda forward.* Presidential power and influence are limited, and appropriately so, but they are real. Presidents can exert a tremendous amount of influence. If they do so properly, that influence can help the institution make a difference in the application of information technologies in ways that advance academic institutions' core missions.
- *Understand the implications of technology and be willing to engage in technology-related strategies and decisions.* Senior institutional leaders must imagine their own new worlds of ideas and energy, learn to recognize the power of technology, and discover how to harness it to help move the institution forward.[6]

- *Be opportunistic.* We pay homage to the process of strategic planning and the need for a clear institutional mission and vision; however, technology's accelerating pace sometimes presents unforeseen opportunities. Institutional leaders must be prepared to recognize and pursue such opportunities when they arise.
- *Understand that institutional leaders can make change "safe."* The application of technology, by its nature, is disruptive. It changes the status quo, replaces the familiar with the unfamiliar, and requires us to change the ways we think and work. Institutional leaders can make change "safe" by knowing the negative effects of technology, ensuring that they are not imposed on the institution, and giving faculty and staff adequate opportunities to learn.

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[6] A helpful resource for institutional leaders is the report by editors Carole A. Barone and Paul R. Hagner, *Technology-Enhanced Teaching and Learning: Leading and Supporting the Transformation on Your Campus*. This publication is the fifth in the EDUCAUSE Leadership Strategies Series published by Jossey-Bass in 2001. Books in this series offer practical advice and guidelines to help campus leaders develop action plans for a technology-based future. EDUCAUSE also has created a primary reading list for campus executives that identifies key articles related to a list of top 10 issues identified in the annual EDUCAUSE Current Issues Survey; see http://www.educause.edu/issues.

Many authors have written about transformational leadership qualities, but few address such leadership in the higher education environment. An exception is the work of Duin, Baer, and Starke-Meyerring (2001). In *Partnering in the Learning Marketspace*, they describe a set of leadership characteristics that transformational change leaders might also consider requirements. According to these authors, a college or university leader in today's digital age must:

- understand institutional cultures and effectively deal with cultural dissonance and technology backlash

- sustain existing needed technologies while protecting and promoting disruptive technologies[7]
- be technology literate and use technology to communicate and increase his or her accessibility, network with other leaders, and share information at all levels
- demonstrate the value of collaboration, teamwork, and relationships by developing internal and external partnerships

[7] In *The Innovator's Dilemma*, Clayton Christensen (1997) explains the difference between sustaining and disruptive technologies (web-based distributed education is a disruptive technology). He describes how successful organizations often overlook the impact of disruptive technologies until it is too late. Christensen also explains the difficulty of integrating disruptive technologies into existing organizations, and he presents strategies to accomplish this goal.

A Leadership Action Agenda

Transformational change is systemic and consistent, and it involves all campus constituencies. It is a leveraged process, strategically built with the help of key institutional leaders, including IT leaders such as the chief information officer (CIO).

In addition to a new personal style of leadership embodied in the characteristics described above, college and university leaders need to implement an action agenda to effect the transformation to distributed learning. The following agenda items describe the conditions necessary to support and manage this transformation. If the institutional leader does not have the courage, style, or skill to assume this agenda, the institution will flounder and face frequent jolts of disruptive change.

Establish an Institutional Vision

Because of distributed learning's pervasive impact, all affected campus elements must work together to form a shared vision. Hawkins (2000) notes that because of the speed and magnitude of changes brought about by technology, higher education may face a significant level of uncertainty in the years ahead. This possibility suggests a need for institutions to be specific about their goals and directions, including identifying the communities (markets) they will serve and the programs they will offer, defining instructional models, and clarifying institutional aspirations. That vision must be sensitive to quality, must make the

environment safe for change, and must be assessed qualitatively and quantitatively. The president must lead the campus community through the process of establishing this vision.

To assist in the complex process of defining goals and directions, EDUCAUSE has created the READY web site (http://www.educause. edu/ready/) to provide a conceptual framework for institutional planning and decision making about distributed learning. The interactive READY site poses key (and often challenging) questions, providing the context for a dialogue among campus leaders about the issues they must confront in planning for distributed learning.

To implement distributed learning, institutional leaders must facilitate the vision-setting process, then bring people in line with supporting the vision. To accomplish such vision setting, the president must evaluate the institution's culture and readiness to embrace the vision. The EDUCAUSE National Learning Infrastructure Initiative has articulated 12 conditions (see next page) that indicate institutional characteristics essential to transformational change. Institutional leaders can provide the basis for informed, realistic, and viable decisions by gauging the extent to which the campus community demonstrates and understands these 12 conditions and by using the READY tool.

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12 Campus Conditions for Transformation

These 12 conditions, summarized from the National Learning Infrastructure Initiative Focus Sessions held in September 2000, indicate the institutional characteristics essential to effective action in the knowledge-based economy in which higher education now operates.

- **CHOICES—Identifying a strategic direction and selecting a path to get there based on a clear sense of institutional mission.**

- **COMMITMENT—Allocating resources and aligning policy to enable the institution to adjust its course and to follow the path selected.**

- **COURAGE—Providing visible, focused leadership from the highest level of administration.**

- **COMMUNICATION—Building a climate of trust by including the entire campus community in the transformation process through a carefully conceived and well-executed strategy for consultation (conversation and critical discussion) and for dissemination of information about extant and emerging services, plans, decisions, and so forth.**

- **COOPERATION—Collaborating across functions and throughout levels and constituencies to achieve a consistent, integrated set of support services for teaching and learning.**

- **COMMUNITY—Complementing the community of support nurtured through cross-functional collaboration with an equally cohesive community of faculty across disciplines; creating an engaged community of learners.**

- **CURRICULUM—Reconceptualizing the curriculum to reflect its distributed, interdisciplinary, and outcomes-oriented nature.**

- **CONSISTENCY—Reflecting institutional commitment to transformation through consistent action and acknowledging the importance of standards within both the technology industry and the institution; aligning organizational rhetoric to support and reinforce transformative behavior.**

- **CAPACITY/COMPETENCY—Developing "the teaching and learning capacity of the institution (for example, curriculum and faculty) to serve student achievement and outcomes" (CHEA, 2000, p. 3); using intelligent assessment to drive transformation by defining and evaluating institutional success in terms of student achievement and outcomes.**

- **COMPLEXITY/CONFUSION—Overcoming the confusion associated with coping with transformation; adapting to the inherent complexity of the decision-making process by adopting more agile and responsive governance processes.**

- **CULTURE/CONTEXT—Understanding the culture, values, and sensitivities of a given campus climate.**

- **CREATIVITY—Developing strategies and tactics that harmonize with the campus culture and context and recognizing that this is a creative, not a political, process.**

Communicate Executive Leadership and Support

To make a graceful transformation to distributed learning, colleges and universities must make IT organic–that is, make it part of everything the institution does–rather than employ the old add-on or bolt-on model. Achieving this integration requires institutional leaders to clearly articulate a public statement of the vision and goals established in the first step toward transformation. Leaders and campus decision makers should keep goal statements brief and easy to remember. If people cannot remember the institution's goals, how can they be expected to implement them?

Leaders themselves must understand and openly support the concepts and the linkages between goals and technology, and they must continually establish priorities to make the vision happen. Strong leadership and personal involvement by the president are key ingredients to success, and alignment must exist between the institution's goals and objectives and the president's agenda. For today's leaders, the term "communication" means understanding, acceptance, buy-in, and ownership of the vision by the campus community, and the president must determine how to gain that degree of communication with his or her community.

Institutional leaders support the vision by frequently and effectively communicating to the campus community and by ensuring institutional alignment regarding support structures and policy formation. (This topic is discussed in a later section.)

Integrate IT into the Institutional Plan and Budget

For decades, we have talked about IT and higher education, but now we see for the first time that technology is enabling–perhaps even causing–substantive, pervasive changes. These changes make it no longer advisable, or even possible, to have a disconnect between an institution's strategic plans and its IT initiatives, resources, and management. To integrate technology into the strategic plan, leaders must communicate the potential power that technology can exert if leaders use it in an effective, integral way, connecting technology goals with the institution's strategic directions.[8]

Does the institution have a viable strategic plan? Does the plan provide guidance for the use of IT? Does the plan provide any guidance for the scope or direction of distributed learning? Does the plan integrate with the institutional budget process? If there are no answers to these questions, or if the answers to these questions are negative, then additional planning is warranted. If, on the other hand, leaders put the appropriate institutional plans in place, and those plans provide direction and allocate funding for the use of technology, including distributed learning, then leadership's role is to assign and empower the appropriate units to carry out those plans.

In addition, institutional leaders must decide whether investments in technology will be strategic or tactical. Arguably, significant technology initiatives are costly enough that they should be truly strategic. The institution must approach IT from a strategic viewpoint to justify the investments that are required of an institution undertaking significant IT initiatives. Investments of this magnitude need broad-based support. Participatory planning helps. The strategic process must be woven into the fabric of the institution, engaging all stakeholders.

Institutional leaders also must ensure that they actually allocate the needed resources; that is, that they integrate the strategic planning process with the resource-allocation process. Otherwise, the plan may end up having little to do with the institution's future. Leadership at UCF, for example, encourages congruency between goals and resource allocation. The UCF executive team maps the budget to the strategic plan. A university budget committee chaired by the provost allocates the resources. The committee includes the vice presidents, faculty senate chair, strategic planning committee chair, student government president, and chief of staff in the Office of the President.

Own IT Issues

It is important for the president, as well as members of the executive team, to understand and own IT issues, rather than assume that these are exclusively the purview of the CIO or technology officer. It is no longer possible for a college or university president to safely delegate all technology-related decisions to the CIO. The costs are too high, the risks are too great, and the opportunities are too significant for the president not to be personally aware or involved.

Moreover, the president must create the expectation that other executive leaders–such as the chief academic officer, chief business officer, and deans–share the responsibility of understanding technology's role in the life of the institution, "own" IT issues, and partner with the CIO in making IT decisions.

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[8] At UCF, there is no separate IT plan; it is embedded in the institutional plan. As a result, the vision for distributed education has become a reality, and a campus-wide technology initiative–including both campus networking and online learning programs–has transformed the university.

Develop the Right Leadership Team

We cannot overemphasize the importance of creating the right internal leadership team. The president needs to find task-oriented, team-oriented, competent people and then trust them to do the job. It is also wise not to underestimate the importance of "chemistry" within the executive leadership team.

Traditionally, governance within the academy has been a combination of executive leadership and the faculty–a shared governance. But now a third party, IT leadership, has come to the table. How can this new configuration work best to serve an institution's needs and transform the institution?

Institutional leaders must work appropriately with the campus IT leader, ensuring his or her membership on the executive team. How this happens varies by institution. At UCF, the president and vice presidents meet regularly with the CIO on an executive leadership agenda. The CIO meets regularly with all deans, directors, and others as part of his strategy to attune IT goals to institutional needs. Over time, this ongoing dialogue provides key administrators with the information they need to make technology decisions and choices, and it keeps IT leaders constantly aware of shifting needs, strategies, and directions. We build consensus and allocate resources accordingly.

The extent to which an institution's leaders can act in this way indicates the maturity of their perspective regarding technology, the health and maturity of their political environment, and the level of trust within the leadership team.

Alignment of Institutional Goals and Support

To support a quality distributed learning initiative, institutional leaders must ensure that people have the tools and support systems that will empower them through a comprehensive set of institutional services and functions. Some are extensions of existing activities, while others may need to be developed.

Faculty Development

Distributed learning challenges many of the basic assumptions that faculty hold about teaching and learning. Success requires rethinking how to best present and learn content, as well as which faculty and student roles best contribute to student success. A high-quality online course is much more than a web page with a syllabus and lecture notes. The prior experience at many institutions suggests that faculty can best make this transformation when leaders provide them with well-designed faculty development opportunities. Because of the time commitments required, faculty members may need release time or additional compensation. But an investment in high-quality faculty development can yield a high return because faculty who achieve online success often become motivated and enabled to improve their other courses as well.

Faculty are accustomed to being solely responsible for the content and delivery of their courses, yet the preparation and delivery of online courses will most likely involve a team, including instructional designers, programmers, and digital media specialists. (This topic is discussed in more detail later.) One goal of the faculty development process is to create trust between faculty and the support team, leading to a long-term and successful working relationship.[9]

Faculty development is one of the most important factors in achieving successful outcomes and satisfied faculty. Institutional leaders must recognize the need for high-quality faculty development opportunities and provide the appropriate support personnel to accomplish this function.

Course Development Support

Developing an online course involves multiple elements, including design, content presentation, interaction, graphic design, coding, and testing. Individual faculty may exhibit little or no ability in these areas, and in any event they are likely to be too busy to devote time to learning or applying these skills. To achieve quality and consistency in their online courses, faculty will need the assistance of instructional technology and IT practitioners.

An institution will need to assemble a team of instructional designers, digital media specialists, programmers, and software engineers to provide faculty members with the level of

> [A]n investment in high-quality faculty development can yield a high return because faculty who achieve online success often become motivated and enabled to improve their other courses as well.

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[9] Information on UCF's ongoing study of web-based teaching and learning, including a "webliography" of research publications and presentations, can be found on the web sites of the Research Initiative for Teaching Effectiveness at http://pegasus.cc.ucf.edu/~rite and the Center for Distributed Learning at http://distrib.ucf.edu/dlucf/present.htm.

support they require to achieve success. For those who wish to take greater responsibility for developing or maintaining their online courses, this unit will help to develop the course, then train faculty, staff, or student assistants to maintain the course thereafter.[10] Few institutions are likely to possess the required breadth and depth of expertise within existing campus units, and they must therefore bring about the required organizational realignments or create this capacity by hiring the necessary talent.

Systemic Faculty Support

Distributed learning is a multifaceted and complex activity. Consequently, existing campus support units are not likely to be able to respond immediately with systemic support, as opposed to the more traditional boutique-style, one-on-one support model that favors faculty innovators but does little to encourage or support mainstream faculty who are late adopters of technology. IT organizations may know little about learning theory or instructional models, and teaching and learning centers are not likely to have the necessary depth of technical talent. Neither unit may employ the necessary instructional designers or digital media specialists or know how to shift from boutique-style tool training to systemic support.

A new organizational model is emerging within many of the institutions that are pursuing large-scale distributed learning initiatives. This new model combines the best of traditional IT units with an instructional technology perspective, resulting in a fusion of the two ITs. Among the defining characteristics of these new distributed learning support organizations are the central prominence of instructional designers, the use of support teams for faculty and course development, and the use of instructional systems design methodologies. Again, institutional leadership must recognize and respond to this need.

Infrastructure

Although most institutions have at least some elements of the technology infrastructure needed to support distributed learning, developing online courses likely will require additional equipment and specialized software–for example, additional servers and a course management system. Student access requires network bandwidth and modem pools or Internet service provider connections. These facilities must be well managed and maintained to achieve a high degree of reliability. Although much of the required infrastructure may already be in place, distributed learning imposes unique demands that institutional leaders must understand. Often, institutions must implement special operational procedures to address the requirements of distributed learning, especially regarding system performance (can the infrastructure support all online students at peak demand?), scalability (as the number of online courses and students expands, can the infrastructure accommodate this load without undergoing degraded performance?), and availability (is the online course server accessible at all times when students may need to access their courses?).[11]

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[10] Examples of units that have successfully built strong long-term relationships with faculty are the Course Development and Web Services department at UCF (Hartman and Truman-Davis, 2001), and The California State University's Center for Distributed Learning (Hanley, 2001).

[11] For a concise discussion on infrastructure requirements to support networked teaching and learning, see "Form Follows Function: Establishing the Necessary Infrastructure," by Bret L. Ingerman in *Technology-Enhanced Teaching and Learning: Leading and Supporting the Transformation on Your Campus* (Barone and Hagner, eds., 2001). EDUCAUSE also publishes a guide to help students and parents evaluate campus IT infrastructure and online service environments (see http://www.educause.edu/consumerguide).

From a leadership perspective, infrastructure is primarily a budgetary decision. Leaders must know that distributed learning comes with its own technical resource requirements, and failure to provide a high-quality, reliable infrastructure is akin to barring the classroom door.

Learner Support Services

Online learners who are seldom or never physically present on campus need the same access to networked library resources and services as on-campus students. An extensive array of electronic library resources, especially full-text resources coupled with electronic library services, will meet the needs of distance learners and enhance information access for on-campus students and faculty. The institution is obligated to ensure that any online course provides adequate online access to resources required for course participation.

In addition to accessing electronic information resources, distributed learning students also need electronic access to services such as registration, advising, financial aid, and the bookstore. Other needs include course-specific support, guidance in navigating the course management system, proper configuration of their computer to access the campus network, or resolution of ISP issues. And because many online students participate in their courses late at night or on weekends, their needs conflict with traditional service hours.

As a result, these students often turn to their instructors with a wide range of support needs to which the faculty member may have neither the time nor expertise to respond. Distributed learning often forces institutions to create a broad array of electronic student services, 24-7 help desks, and special support materials for online students.[12]

Support services for online students are a critical success factor for distributed learning programs and also an emerging accreditation requirement for such programs. This critical need for support means that the institution must first recognize the need, then plan accordingly and invest resources in providing such services online. This process can appear complex because, potentially, institutional leaders may need to make the full range of student support services accessible to online students. However, the trend toward providing online access to student services is well established at most institutions and, once in place, such services benefit all students, including those enrolled in online courses.

Institutional Policies and Practices

As stated above, academic administrators, including deans, the academic vice president, and the president, need to reach consensus on the institution's goals, instructional models, faculty engagement strategies, and above all, intended audiences and programs. There are also many issues surrounding faculty roles, rewards, and workload. How do faculty become involved in distributed learning? Will this activity be valued and evaluated in the same way as the teaching of regular courses in the tenure and promotion process? If faculty members publish papers based on their innovative teaching experiences, will these publications contribute toward tenure or promotion? Many

> An extensive array of electronic library resources, especially full-text resources coupled with electronic library services, will meet the needs of distance learners and enhance information access for on-campus students and faculty.

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[12] UCF has achieved great success with its Pegasus Disc, a student support CD-ROM containing extensive information about the university, links to electronic student services, tutorials, self-assessments, and a utility to configure the student's computer to dial into the campus network. The Pegasus Disc has reduced student support demand even in the face of rapidly growing online enrollments, and it has significantly reduced the support burden on faculty. All incoming UCF students now receive this CD-ROM (see http://reach.ucf.edu/~coursdev/cdrom/pegasus.htm).

faculty report that their online courses require more time to prepare and conduct than do their face-to-face courses. Will this issue raise concerns, and if so, how will the institution respond? Is there a faculty union? Has the union taken a position on distributed learning? Does the position support or oppose the direction the institution has taken? Have the faculty begun to explore the scholarship of teaching?

Other issues that institutions likely will confront concern intellectual property rights. Universities have generally allowed faculty members to retain copyrights to material they publish, but the rights to new inventions, processes, and patents are more problematic because the institution may have contributed resources to support those discoveries (Hawkins, 1999). Distributed learning is, in this regard, similar to both circumstances, and this situation also introduces problems. Who owns online courses? Are faculty members free to sell their online courses to publishers or other e-learning organizations? Would they be permitted to offer their online courses at other institutions? Can one faculty member use the online courses or materials of another? Can that faculty member modify the course? How might these circumstances change if the institution partners with a commercial e-learning company?

Copyright is another important intellectual property issue. How can faculty navigate the intricate differences between fair use in the classroom and with online course delivery (Higher Education Alliance, 1997)? Are students more dishonest now than they used to be, given the ease with which the web and word processing permit cutting and pasting content? How can faculty detect–and prevent–plagiarism?[13]

Questions such as these do not have simple answers. However, they illustrate some of the fundamental issues that institutions may need to address. Leaders must ensure that the appropriate stakeholders at their institution–especially faculty–engage in a process that aggressively examines practices and develops policies and solutions that remain consistent with the institution's governance model and culture. One step that institutional leaders can take is to implement campaigns that inform students about intellectual honesty, reminding them of their obligation to use and cite others' work appropriately; train faculty to handle plagiarism cases; and subscribe to one of the online plagiarism detection services.

How a given higher education institution ultimately decides to deal with this question depends largely on its culture and governance conventions. Most presidents seem to know how they would do this on their campus, once they realize that they need to do it.

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[13] See "Term Paper Mills, Anti-Plagiarism Tools, and Academic Integrity" (Groark, Oblinger, and Choa, 2001). For an alternative view of plagiarism, see "Forget About Policing Plagiarism. Just Teach" (Howard, 2001).

Assessment of Program Effectiveness

Assessment is an indispensable component of any distributed learning effort. Initially, the focus of assessment may be proving that it is possible to achieve high quality and student learning effectiveness in the online environment. The real value of assessment, however, is that it informs process improvement and policy development. By collecting and analyzing ongoing data from faculty and students, and making strategic use of those data, institutional leaders can improve all facets of distributed learning—faculty development, course development, student support, and institutional policy. Presidents must ensure that their institutions do not skip this vital step; they can do this by supporting assessment efforts financially and ensuring that faculty use assessment results for continuous improvement.

The Research Initiative for Teaching Effectiveness (RITE) at UCF was created so that the distributed learning initiative would be assessed from its inception (Dziuban, et al., in press). It has studied online students and faculty since 1996 and has accumulated a significant body of data that faculty and staff have analyzed and applied to make continuous improvements in the university's distributed learning program.[14] The RITE staff collect data and track demographics, asking such questions as: What are our students' needs? To what ethnic groups do they belong? What are their learning styles? What learning outcomes do students achieve? How satisfied are students and faculty with online learning?

By collecting and analyzing ongoing data from faculty and students, and making strategic use of those data, institutional leaders can improve all facets of distributed learning.

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[14] For more information, visit http://pegasus.cc.ucf.edu/~rite/.

Conclusion

Distributed learning can serve as both a sustaining and a disruptive application of technology, depending on how and by whom it is developed and applied.[15] The challenges for institutional leaders are to understand the potential of distributed learning, connect that potential to institutional goals, implement appropriate organizational structures and policies, and enable the institution to harness the potential of distributed learning to achieve success.

Use of the web in teaching and learning is inevitable. The question is not whether it will happen, but how, why, and with what outcomes. Like any powerful tool, technology and the web can be used strategically or haphazardly. In the hands of visionary leaders, distributed learning can become a force for institutional improvement and transformation.

The true challenge for current and future campus leaders lies in making critical connections between technological possibilities and institutional priorities and using their vision and influence to chart a successful course. The degree of success that institutional leaders will achieve in meeting this challenge will profoundly influence the future of higher education in our country.

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[15] See Clayton Christensen's *The Innovator's Dilemma* (1997), which describes the effect of disruptive technologies on existing organizations and discusses successful management strategies for incorporating disruptive technologies within successful organizations.

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