

Supporting Faculty in the Use of
Technology: A Guide to Principles,
Policies, and Implementation Strategies

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*A report by the Distance Learning Policy Laboratory
Faculty Issues Subcommittee*

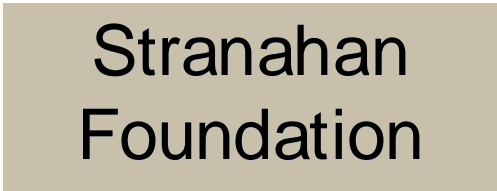
**A Report and Recommendations in a Series on
Distance Learning Policy Issues**

About the Southern Regional Education Board Distance Learning Policy Laboratory

At its June, 1999, meeting, the Southern Regional Education Board approved the establishment of the SREB Distance Learning Policy Laboratory. Building upon the work of the Educational Technology Cooperative and the *Electronic Campus*, the Policy Laboratory seeks to reduce or eliminate existing or potential policy barriers to distance learning activities in three broad areas: **access**, **quality**, and **cost**. The Policy Laboratory's main objectives are:

- ? Assessing educational policy issues that are identified as barriers;
- ? Establishing policy baselines of current practices, procedures and strategies;
- ? Assisting states and institutions as they develop ways to use technology to improve quality, expand access, and reduce costs;
- ? Establishing trial or pilot efforts with State Partners to test new distance learning approaches or strategies;
- ? Promoting state-level policy changes via existing SREB organizational arrangements and agreements;
- ? Developing and testing agreements among institutions and states;
- ? Utilizing the regional platform to serve as a clearinghouse for states and institutions to discuss policy issues and concerns; and
- ? Measuring the implementation of policy changes in the SREB states and widely disseminating the results.

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Table of Contents

Executive Summary	i
E-Learning: A necessary Tool for All	1
Faculty Skills and Support: An Essential Ingredient	1
Teaching and Learning Effectiveness in the E-Learning Environment	2
Faculty Roles, Incentives, and Accompanying Structures	7
Intellectual Property Issues	12
Regional, State, and Institutional Partnerships	14
Appendix	16

Executive Summary

The relationship between student and teacher is fundamental to the learning process. That relationship in a technology-rich environment will change, but it becomes no less important. In fact, as retrieval, dissemination, and communication of information become automated, the role of faculty member as “teacher” becomes even more critical. To sustain our progress we must learn from the successes of others and accelerate investments in the “human capital” side of technology. Faculty, instructional designers, technical support staff, information specialists and librarians, tutors, and students all need continuous training and development to keep abreast of information technology developments.

The work of the Distance Learning Faculty Issues Subcommittee has been aimed at achieving three broad goals:

- ? To use technology to improve the effectiveness of the teaching and learning process;
- ? To support new roles for faculty in an e-learning environment and to develop appropriate compensation and incentive structures to accompany those new roles; and
- ? To establish equitable policies that allow widespread access to information resources while sustaining the traditional rights of content owners to their intellectual property.

The Subcommittee has made ten recommendations to SREB, states, and institutions to achieve these goals:

1. Faculty need and should expect state and institutional commitment to development and support structures that improve their productivity and effectiveness as teachers.
2. Institutions and systems should incorporate technology into teaching in both traditional classroom settings and distance learning programs.
3. Evaluation activities at the state and institutional levels need to be strengthened. Further, recent efforts to formulate more effective guidelines for accrediting processes need refinement to address and support emerging e-learning structures.
4. States and SREB should encourage cooperative activities that will achieve both economies of scale and qualitative improvements.

5. Institutions and states should encourage team approaches to curriculum development. This, in turn, will require changes in contracts, workload, and compensation policies.
6. Contributions to the scholarship of teaching, the creation of digital learning materials, and the effective use of those materials should be honored and rewarded in the hiring, promotion, and tenure and review processes.
7. New structures that are market-responsive and capable of managing change are needed to develop, deliver, and sustain e-learning.
8. All institutions need established policies that address questions of ownership of course and course materials.
9. Rewards from the commercialization of course materials should extend to all contributors to the process.

E-Learning: A Necessary Tool for All

The rapid development of information technologies is transforming every aspect of our lives—especially how we learn, communicate, and organize our economic and social enterprises. Not a single field of intellectual, vocational, or professional pursuit is exempt from the transforming implications of a global network of information storage, dissemination, and knowledge creation. Simply put, every student needs and deserves an education that utilizes technology tools, products, and delivery mechanisms in order to be prepared for entrance to the workforce. The results, we believe, will be improved learning, lower opportunity costs to students, and greater access.

Faculty Skills and Support: An Essential Ingredient

The relationship between student and teacher is fundamental to the learning process. That relationship in a technology-rich environment will change, but it becomes no less important. In fact, as retrieval, dissemination, and communication of information become automated, the role of faculty member as “teacher” becomes even more critical. Who, if not faculty, will provide the guidance, the wisdom, the inspiration, and the motivation for students to make sense of the volume and complexity of information at their disposal? Who, if not faculty, will provide the analytical and ethical framework, within which to apply knowledge in the future?

Over the past decade, state governments, and students themselves, through tuition, fees, and private purchases, have made enormous and necessary investments in technology infrastructure and tools—the satellites, land-lines, networks, wired (and wireless) classrooms, software, and computing devices that bring us the rich stream of information and tools to our desktops, laptops, and now the palms of our hands. This investment has been a necessary but insufficient effort, however, in the challenge of incorporating technology into the teaching and learning process.

To sustain our progress we must learn from the successes of others and accelerate our investments in the “human capital” side of technology. Faculty, instructional designers, technical support staff, information specialists and librarians, tutors, and students all need continuous training and development to keep abreast of information technology (IT) developments.

The work of the Faculty Issues Committee of the Distance Learning Policy Laboratory has been aimed at achieving three broad goals:

- ? To use technology to improve the effectiveness of the teaching and learning process;
- ? To support new roles for faculty in an e-learning environment and to develop appropriate compensation and incentive structures to accompany those new roles; and

- ? To establish equitable policies that allow widespread access to information resources while sustaining the traditional rights of content owners to their intellectual property.

The recommendations that follow are aimed at achieving these three broad goals. Specific examples of state and institutional policies can be found in the Appendix.

Teaching and Learning Effectiveness in the E-Learning Environment

Recommendation 1: Faculty need and should expect state and institutional commitment to development and support structures that improve their productivity and effectiveness as teachers.

The application of technology can fundamentally change the teaching and learning process. The student, accustomed to a faculty-led and directed experience, now finds that he or she must actively participate in the process. Admittedly many faculty are attempting to transfer their face-to-face strategies to an online environment, but many others are using the interactive capacity of learning software and web resources to engage students. A global network of information also suggests new collaborative approaches to learning.

Such transformations to teaching and learning will not come naturally, given the isolation of many faculty from their colleagues and their lack of preparation in the “art of teaching.” In studies of “best practice” institutions, the focus of faculty development efforts has been on teaching and learning issues and not on the technology itself (Epper & Bates, 2001). This seems an obvious conclusion, but one which is widely ignored as institutions launch limited technical assistance efforts to assist faculty, assuming that traditional practices will easily transfer to an electronic environment. It takes both technical competence *and* effective pedagogy to teach in an e-learning environment, which is one reason that institutions have been faced with increasing costs as they attempt to deliver distance education. There are ample opportunities for faculty to learn how to use technology tools, but many do not address classroom management issues nor do they discuss teaching strategies. Faculty need training not only in their academic discipline and course development software, but also in instructional design. It is important for faculty to be able to apply appropriate pedagogy to determine student learning needs and the appropriate delivery format for meeting those needs. Knowledge of both cognitive and learning theories are essential to quality instructional design and delivery.

In its 1998 study of “best practices” in faculty development, the American Productivity and Quality Center (APQC) and the State Higher Education Executive Officers (SHEEO) found that institutions with strong faculty development programs in the use of technology were likely to have all of the following elements:

- ? A strong instructional technology plan for the institution
- ? Extensive investment in technology infrastructure

- ? Support from senior leadership for the use of technology in teaching
- ? Support for faculty members in terms of project funding, release time, technical support, computer upgrades, and professional development
- ? Support for students through computer access, Internet accounts, and financial support

The APQC/SHEEO study also found that “best practice” institutions often took a “project team” approach to faculty development. “This avoids the need for major re-training of faculty in skills outside their subject area expertise and provides relief from technology overload by setting a boundary around the time and resources available to complete the project” (Epper & Bates, 2001).

Other national groups have also called for increased emphasis on faculty training. In its 1998 policy statement on distance education, the Council of Graduate Schools asserted that technology-based courses “require special training to be effective” and that graduate programs themselves should incorporate such training in their preparation of future faculty. Training should include information about learning styles and needs of adult learners, creation of web-based courses, and the use of interactive multimedia materials.

We believe that human resource development is fundamentally an institutional responsibility that should be systematically budgeted for using internal funds. But targeted state funds can provide important incentives in stimulating this commitment, particularly in developing system-wide utilities and multi-institutional cooperative efforts. Louisiana’s Distance Education Initiative and Maryland’s Faculty Training grant program are examples of statewide efforts that encourage collaborative efforts. Both appear to be effective in reaching large numbers of faculty (See the Appendix for additional information).

There is no widely accepted benchmark for funding human resource development in higher education. Suffice it to say that colleges and universities appear to neglect this function when compared with private sector entities. In part this is due to the nature of faculty work itself, which provides time, at least in theory, for self-improvement. It is time, however, for all institutions to explicitly budget additional funds for this priority. This could be a recommendation at the system level (for example, Georgia allocates one percent of personnel budgets for training, and two percent is mandated in Florida community colleges), or per-faculty-member allocations benchmarked on institutions committed to and effectively implementing faculty development programs. (See the Appendix for a description of Virginia Tech’s commitment.)

Anecdotal evidence from chief information officers suggests that as much as 70 percent of the total cost of IT projects—for example, introduction of new administrative software—are training costs. Yet few states, when budgeting and allocating funds for technology initiatives, recognize these costs. More often they are likely to limit technology-related expenditures to one-time expenses such as equipment, leaving institutions with a chronic shortage of support

personnel to assist faculty. This practice is especially damaging to institutional human resource development efforts.

Recommendation 2: Institutions and systems should incorporate technology into teaching in both traditional classroom settings and distance learning programs.

Increasingly it is difficult to distinguish the traditional face-to-face classroom environment from the distance learning environment. Institutions and students are seeking the best of both worlds, so courses come in all varieties of synchronous and asynchronous delivery. Some institutions offer a portion of the course curriculum online and a portion face-to-face, which requires fewer trips to campus and less traditional seat time for students. In other cases, the same multi-media objects that faculty use in class or through tutorials are being used by faculty teaching at a distance. In short, the skills required to effectively teach in today's environment include a technology component for *all faculty*. Thus, training activities for faculty should not be limited to one group or another—the environment of the future will be a *distributed learning environment* where the components and content of courses are part of an electronic network.¹

Institutions that have strong on-campus technology programs are better positioned to engage in distance learning than those without this synergy. Likewise, technology advances in distance learning are having a powerful influence on on-campus programs as well. Initiatives in the South and around the nation to transform large undergraduate courses in the general education curriculum to a technology-rich environment that is customized to individual learners are encouraging. The Pew Grant Program in Course Redesign has now funded 30 large-scale redesign projects, all of which are aimed at improving quality and lowering costs (See <http://www.center.rpi.edu/fundproj.html> and the Appendix for other examples).

Recommendation 3: Evaluation activities at the state and institutional levels need to be strengthened. Further, recent efforts to formulate more effective guidelines for accrediting processes need refinement to address and support emerging e-learning structures.

Evaluation plays a critical role in determining how technology can improve the teaching and learning experience. Not surprisingly, few institutions have the time and resources to rigorously evaluate the effectiveness of their e-learning activities. It is not enough to settle for equivalent performance between students participating in technology-enriched environments and those studying in traditional lecture classrooms. Educators, with state support, should implement evaluation strategies that are aimed at real gains in student learning. This is not a matter of demonstrating that one modality is superior to another. Rather the goal should be

¹ This paper uses a variety of terms to describe the new technology-based learning environment. e-Learning comes as close as any current term to describe the mix of telecommunication tools such as electronic mail, course management systems, self-directed learning software, and Internet resources that are being incorporated into both on-campus and distance-learning courses.

to discover the pedagogical and technical tools that are most effective with a given population and subject matter.

Evaluation efforts in both traditional and e-learning environments must also focus on new skills needed in the modern workplace, in addition to content and discipline skills. These might generally be categorized as “information literacy” skills, but more specifically they involve the ability to search for, access, organize, disseminate, and communicate information and knowledge.

Institutions and states also should focus on the completion rates of distance learning students. Asynchronous courses, especially those with a significant interactive component, do put a greater responsibility for learning upon the student. Students who are ill-prepared for this approach may be unsuccessful and drop out. As with traditional courses, an important measure of success in an electronic environment is the rate of course completion.

Teaching and learning effectiveness should be subjects of both institutional and individual faculty research (an institution’s own students are a rich source of data for this research). In recent years a variety of researchers, national organizations, and regional accrediting commissions have established guidelines upon which to build effective courses. The Institute for Higher Education Policy, in cooperation with the National Education Association and Blackboard Inc., included the following among their recommendations:

- ? The reliability of the technology delivery system should be as failsafe as possible.
- ? Instructional materials should be reviewed periodically to ensure they meet program standards.
- ? Student interaction with faculty and other students is an essential characteristic and should be facilitated through a variety of ways, including voice-mail and/or e-mail.
- ? Student feedback should be constructive and provided in a timely manner.
- ? Intended learning outcomes should be reviewed regularly to ensure clarity, utility, and appropriateness.
- ? The program’s educational effectiveness should be assessed through an evaluation process.

A joint study by members of the regional accrediting bodies has also examined this issue and made some non-binding recommendations, including the following:

- ? Electronically offered degree programs should be coherent and complete, and programs leading to undergraduate degrees should include general education requirements.
- ? While programs may be developed within consortia and out-source elements, it is the institution in which the student is enrolled, not its suppliers or partners, that ultimately is responsible for quality.

An important issue that has not been addressed by these accrediting guidelines is the responsibility for degree integrity and coherence in virtual universities that plan to aggregate

the offerings of participating institutions and grant degrees. A proposal from the Virginia State Council of Higher Education, now under discussion, would establish the Virginia Virtual University to serve as an “aggregator” and “integrator” of courses and to award degrees. Earlier efforts, particularly at the Western Governors University, designed programming to address this issue by developing a series of competency exams. This effort has proven to be quite challenging in reaching consensus on competencies, and it has not been popular with students. Other non-traditional institutions such as Empire State College in New York have gone through an evaluation process of prior credit and life experience and have found some success with students.

However, these efforts have proven to be very labor-intensive and require significant start-up funds and institutional restructuring. The disaggregation of curricula poses significant challenges to the maintenance of programmatic coherence. It also suggests that accrediting bodies and other certifying groups may eventually have to focus on the course as the entity for review, not the degree.

Recommendation 4: States and SREB should encourage activities that will achieve both economies of scale and qualitative improvements.

The Faculty Issues Subcommittee endorses both cooperative faculty development initiatives and cooperative degree programs among institutions. While there are examples of both in the SREB region, they are surprisingly absent from many state systems. These nascent efforts need encouragement and targeted state funding. National organizations and institutions have done an excellent job in recognizing the achievement of pioneers in the field of technology use. But far less is done to provide incentives for collective actions. Given the emphasis SREB has placed on “regional assets,” it may wish to consider an “outstanding achievement award” for consortia and systems engaged in such efforts.

Effective consortia have not been easy to develop in higher education for several reasons. Unlike the private sector, higher education institutions find it difficult to simultaneously *compete and cooperate*. Revenue sharing agreements and integrated data systems in such fields as e-commerce, airlines, and banking are relatively common despite fierce competition. In higher education, however, institutions appear to be overly concerned that cooperative programs will detract from the “home institution’s” offerings, though it is more likely that these arrangements will reach new students, creating a win-win proposition for participating institutions. Moreover, while states and systems have given “lip service” to collaboration, their funding systems often provide little incentive. Thus, institutions are more likely to espouse the rhetoric of collaboration than the reality of action. A thorough review of the incentives implicit and explicit in state funding policies is needed to overcome these obstacles.

Although effective consortia are difficult to establish, there are several successful examples in SREB states (See Appendix). A review of successful consortia reveals that there are some necessary prerequisites for academic program collaboration to work. These include: (1) a

shared sense of collective benefit on the part of all partners; (2) a solid plan and a coordinating structure for sustaining and advancing the work of the consortia; and (3) explicit agreements on revenue and expense sharing. This last element seems to be especially lacking in many higher education collaborations (For an excellent discussion of this topic see Duin, Baer, & Stark-Meyerring, 2001).

Faculty Roles, Incentives, and Accompanying Structures

Recommendation 5: Institutions and states should encourage a “team approach” to instructional design.

The single greatest cultural change facing faculty in the years ahead will be the “unbundling” of faculty functions. Faculty jobs may never be the same in an environment where several equal partners will contribute to the creation of a course. This will be particularly true in an online environment, because of both the economies of scale that can be achieved as well as the qualitative improvements that result from standardization. An effective instructional design team will be essential to quality distance learning.

The importance of individual creativity is not expected to diminish in this environment. But the teaching process is expected to more closely resemble the research process, which in the modern era has been dominated by “team efforts.”

In the guidelines for evaluating electronically offered degree programs, the regional accrediting associations recognize that “traditional faculty roles may be unbundled and/or supplemented as electronically offered programs are developed.” This statement affirms what has been happening in leading institutions all over the country. The teaching and learning process consists of closely related but distinct functions that can be and are being carried out by different members of an instructional team.

The Faculty Issues Subcommittee has identified the following roles as important elements of an instructional team.

1. *Instructional Designer*—Assists instructors in effectively integrating technology into teaching practice and in some cases works directly with the instructor and other relevant staff to develop and update course materials. An understanding of learning theory, pedagogy, and multimedia tools is essential.
2. *Graphic/Interface Designer*—Educates and assists instructors in developing graphical user interfaces that are usable, functional, and visually and aesthetically communicative. Works within a team to assist faculty in effectively integrating graphics and multimedia into the teaching practice.
3. *Technical Support Personnel*—Provides technical support for the network, servers, hardware, software, and other resources required to seamlessly and transparently deliver instruction. Web-based programming skills are essential.

4. *Content Expert*—Provides expertise of subject matter and knowledge of the discipline and its research methodologies. Understands proper sequencing of learning and possesses strong search and research skills.
5. *Direct Instructor*—Develops or directs the development of course materials and delivers or oversees the delivery of courses. Upholds the academic integrity and rigor of the knowledge shared. Explores options to enhance materials using technology and carries out continuous improvement activities to enhance the online experience. Interacts with students online and face-to-face.
6. *Information Resource Personnel*—Identifies, searches, and provides collateral materials in support of courses and curricula. Serves the traditional role of librarian, but with a more active role in developing syllabi. Provides guidance and possibly clearance for the use of copyright materials.
7. *Mentor/Tutor*—Serves as a guide to assist students and answer questions regarding the course content and organization. May provide technical and substantive assistance both online and face-to-face at remote sites.
8. *Assessor*—May develop and/or administer student assessments of learning as well as instruments such as course evaluations.

The direct instructor remains at the center of the process in guaranteeing academic integrity but is assisted by all of the other partners. Students are becoming a more important element in the teaching and learning process as new emphasis is placed on self-directed learning.

The implications for institutional and state policies toward faculty and content development are significant in this environment. The emphasis will shift, and is shifting, to investment in the curriculum as opposed to the individual faculty member. An important element of this decision will be to “build” the curriculum internally or “buy or borrow” from outside providers. As curriculum in higher education is taking the form of modules rather than entire courses, institutional design teams will increasingly be assembling materials and syllabi from a variety of sources.

Critical shortages exist in the availability of instructional designers and technical support personnel, which suggests that, as with academic program development, these resources will need to be shared across departments and colleges as well as across systems and consortia. The Connecticut Distance Learning Consortium, for example, provides application hosting, technical support, help desk services, faculty training, and application programming to all higher education institutions in the state, providing an opportunity in which “higher education can experiment with unbundling services while not completely letting go” (Klonski, 2001, p. 30).

A team approach to curriculum development will also require rethinking of workload and compensation policies. Contracts and workload policy changes should be initiated that break out of the “one-size-fits-all” assumptions of current tenure and promotion policies. The first step at comprehensive and research universities should be to allow differential workload and productivity expectations among individual faculty in the same department.

While adjusting the traditional criteria for compensation, promotion, and tenure may be adequate for some circumstances and some institutions, institutions should also consider (and state systems encourage) completely new contracts, workload policies, and compensation packages for the e-learning environment. The British Columbia Open Learning Agency in Vancouver, a pioneer in distance learning in North America, uses three distinct contracts for members of the instructional team: (1) content experts and instructional designers operate on annual contracts for fixed amounts and explicit deliverables; (2) instructors have traditional contracts related to class loads; and (3) mentor/tutors are paid on a per-student basis.

A recent study of compensation practices in distance education (Schifter, 2000) surveyed 212 individuals from 160 different institutions. The study found that institutions more often provide additional compensation for faculty to develop courses than to teach them. That compensation can take the form of release time, overload pay, and the payment of Internet service provider costs. Far less common is the provision of a teaching assistant, since many distance learning courses are relatively small (the average class size in this study was 26).

In our review of compensation practices, we found an emerging trend of compensation that was, in part, based on a per-student compensation. Given the additional workload related to e-mail interactions, institutions such as Marshall University in West Virginia and Palm Beach Community College in Florida are paying on a per-student basis. Another variation is to set standard class loads for Internet-based courses (between 20 and 30 students) and to pay an additional premium to the faculty for each student enrolled above these numbers. Some institutions and systems are also considering “80-20” agreements for information technology support staff that would allow these high-demand, talented individuals to work a portion of their time outside the university.

Recommendation 6: Contributions to the scholarship of teaching, the creation of digital learning materials, and the effective use of those materials should be honored and rewarded in the hiring, promotion, and tenure and review processes.

SREB has had a longstanding commitment to the improvement of teaching and learning. As early as the 1970s, and with the advent of the assessment movement in the 1980s, SREB reports have emphasized the importance of teaching as a measure of faculty worth. With the advent of new technology-based teaching and learning tools, we see the opportunity for further enhancement of the teaching function of college and university faculty. While legislators may look to technology as a productivity tool (more students taught at less cost), faculty engaged with technology-based learning are most optimistic about the potential of technology to improve teaching and learning effectiveness because learning materials can be customized to the individual learner and used to significantly increase skills and knowledge.

Institutions and state systems should recognize, reward, and support faculty who are willing to invest time, creativity, and effort in the use of technology. Regardless of the use of

technology or distance learning, the assessment of teaching effectiveness must become a more significant component of reward systems. Institutions should incorporate technology skills and the understanding of teaching pedagogy, particularly for adult populations, as a specific criterion in evaluating candidates for hire.

Using the “scholarship of teaching” as a faculty evaluation tool has traditionally suffered from three powerful constraints: (1) the perceived greater value of the contributions of research versus teaching; (2) the inability or unwillingness of peers to directly observe the teaching and learning process; and (3) the lack of concrete criteria and measures against which to judge teaching effectiveness.

All three constraints exist in a digital learning environment as well, but important changes are occurring which can enhance the relative value of teaching versus research. Most powerfully, technology now provides a more *transparent* environment in which the products and processes of teaching and learning are easily observable and archived. With simple devices such as faculty web pages, peers and students have access to materials, course design, multi-media materials, and syllabi developed for the course. And with “threaded” discussions, e-mail, and chat rooms, there is documentation of the level and type of interaction taking place in a distance-learning mode. In the case of video, the faculty member’s teaching performance can be directly observed, in contrast to the “closed” environment of the traditional classroom.

Peer review and competitive funding have been the foundation of evaluation in the research world. Through competitive funding processes and discipline-based review in journals, an individual faculty member’s research productivity can be judged, even quantified, through such devices as citation analysis. In distance learning we are making progress on both of these issues. Competitive funding for software and program development is increasingly common at the state, federal, and private foundation levels.

In the area of peer review, several SREB states and institutions have taken the lead in founding and participating in the MERLOT project (Multimedia Educational Resource for Learning and Online Teaching). Organized around discipline groups, MERLOT has established criteria and a process for evaluating digital materials developed by individual faculty and instructional teams (For more information, see the Appendix).

Recommendation 7: New structures that are market-responsive and capable of managing change are needed to develop, deliver, and sustain e-learning.

Increasingly institutions are finding that the changes needed to be customer-responsive and competitive in an e-learning environment are just not possible within the confines of traditional institutional cultures and restrictive state policies. States, for example, impose restrictions on hiring practices and compensation rates that may not be in tune with market realities. They may also restrict institutional activities in order to avoid duplication and

protect in-state providers. It is often easier for an aggressive distance education program to operate outside of its own state than within it.

One solution to this problem is to change the state regulatory environment to encourage competition; another is for institutions to establish new entities, either not-for-profit or for-profit, which are subject to fewer state regulations.

We are now seeing the second generation of “virtual universities” develop, often with explicit state support as part of a statewide coordinating and governing board structure. The Kentucky Virtual University is a good example. While it does not employ faculty directly, it is a mechanism for channeling state support to state priorities through individual faculty and institutions.

In Wisconsin, the University System has created a not-for-profit organization called Learning Innovations to provide course development services to institutions in the system and to corporations in the state. Its separation from state government hiring practices has been a primary advantage (See www.learn.wisconsin.edu).

In addition to online universities, other e-learning businesses have entered the market. These include:

- ? *Online Enablers*—More and more frequently, institutions recognize that there are significant advantages to outsourcing some or all of the creation and management of their online courses and programs. Enablers such as WebCT, Blackboard, eCollege, Eduprise, and others have developed core competencies in migrating content, creating interfaces, and supporting the applications; they can often produce a superior product than university in-house staff can at a significant cost savings.
- ? *The College Portals*—These businesses offer colleges the opportunity to create a virtual campus that links students, either on or off campus, to both the administrative and academic backbone of the school. Through this medium students can submit applications, register for classes, access grades, obtain transcripts, view class syllabi, purchase texts and materials, obtain student loan information, and communicate with fellow students, faculty, and administrators. Companies in this category include Campus Pipeline, CollegeEdge, CollegeNet, GoCampus, FastWEB, and XAP.com.
- ? *Digital Content Providers*—These entities include commercialized databases, federal programs sponsored by the National Science Foundation (For example, see www.smete.org for resources in the sciences, mathematics, and engineering), and consortial efforts such as MERLOT. Software companies such as Academic Systems that first provided courseware are now unbundling content and licensing learning objects. Traditional publishing companies also are competing in the digital content business.

All of these e-learning initiatives are changing the relationship between faculty and institutions. For the first time, faculty with teaching expertise are finding an outlet for their services that extends beyond the campus, and institutions are finding that they no longer need to depend solely on internal expertise to assist faculty in developing Internet-based courses. A client-vendor relationship has emerged in the instructional field that is similar to what has existed in the world of research for many years.

Both at the system and institutional levels, budgeting structures and planning mechanisms are based in large part on student credit hours, student-faculty ratios, faculty workloads, and the projected costs related to those measures in a traditional campus environment. As faculty roles are unbundled and the work is being shifted to other professionals that make up the instructional team, a re-examination of those formulae is necessary. While it is unclear how the unbundling of teaching functions is likely to affect workload, new structures may be more amenable to these changes than traditional institutions.

Additionally, just as e-learning has increased the mobility of students between and among campuses, similar issues are surfacing related to faculty. Distributed learning allows faculty (and others) to be at a distance from the institution, permitting faculty members to extend their expertise and service across multiple campuses. States and institutions are encouraged to begin discussions concerning the issues such arrangements may present.

Intellectual Property Issues

Recommendation 8: All institutions need established policies that address the questions of ownership of course and course materials.

When the SREB Distance Learning Policy Laboratory was begun in 1999, state systems and institutions were in a quandary as to what policies should be developed regarding the ownership of electronic courses and course materials. Since that time, this issue has had considerable study and policy development. The Faculty Issues Subcommittee recommends that institutions without written guidelines on course ownership and course materials establish such guidelines. These policies should be clearly communicated and developed prior to any major e-learning endeavor. *We do not, however, believe it is necessary for such policies to be uniform across institutions, even those within the same system.* Circumstances and cultures are too varied in higher education for statewide policy in this arena.

The question of ownership hinges on whether or not faculty employment is “work for hire” or whether scholarly work is an exception to copyright law in other sectors. The legal answer is murky, according to experts. (See, for example “Owning Thought” in *University Business*, March, 2001.) Traditional practices, however, are much clearer. Few institutions, until recently, have attempted to exercise ownership rights over scholarly work, including class instruction.

It is this tradition of faculty ownership that led a group of symposium participants in the Pew Learning and Technology Program to conclude that the best way to encourage faculty participation in developing and delivering technology-based instruction is for institutions to proceed cautiously in asserting ownership rights over digital course materials and distance learning courses. Only in specific cases “where the institution has made a *substantial* contribution to the creation of course materials” may the institution wish to assert ownership. Even in these cases, a revenue sharing agreement may be appropriate. (See “Who Owns Online Courses and Course Materials?” by Carol Twigg, 2000, listed in the References that follow.)

Some institutions are drawing a distinction between course materials, which remain the property of the faculty member, and the course itself, which is a product of the institution. This grows not from concerns over revenue sharing but from competition and commitment of faculty loyalty to their home institution. Institutions may wish to exercise control over faculty working for competing institutions—or in the case of the recent design by Harvard, to avoid association with less reputable institutions.

Guidelines developed by the American Association of University Professors (AAUP) essentially assert faculty ownership of distance learning courses and materials in a similar fashion to traditional course materials. AAUP recommends policies that establish this ownership except in the following circumstances:

- ? The college or university expressly directs a faculty member to create a specified work.
- ? The faculty member has voluntarily transferred the copyright to the institution.
- ? The college or university has contributed to a “joint work” in the form of services that “go beyond what is traditionally provided to faculty members.”

Actual institutional policies on intellectual property vary considerably, ranging from policies that consider all work done by faculty as “work for hire,” and thus vesting ownership with the institution, to agreements that place scholarly work, including courses and course materials, in the hands of faculty members. Generally, public institutions have been more conservative, and private institutions more liberal, in granting rights of faculty ownership.

Recommendation 9: Rewards from the commercialization of course materials should extend to all contributors and team efforts.

Although most digital-learning materials never reach the commercialization stage (See “The Gold Mine Scenario” in Twigg, 2000), the possibility does pose some unique challenges to colleges and universities. Yet questions of ownership of materials and the sharing of revenue generated from this intellectual property is not without precedent in higher education. Intellectual property policy in the area of patents is well-developed, and institutions have long shared the fruits of commercial licensing arrangements with faculty inventors and researchers. Typical of such financial agreements are revenue sharing agreements that provide

shares to the individual, the department, and the institution as a whole. There is also a tradition of faculty royalties for published scholarly work.

The University of Houston Clear Lake's intellectual property policy spells out potential revenue sharing arrangements. In this case, revenue generated from commercialization is shared with "creators" (after expenses of development are recouped). The first \$1,000 of income is paid to the creator(s), and then a 50 percent share is paid to creator(s) and 50 percent to the institution for the next \$100,000.

In the case of digital learning materials, revenue sharing also may be appropriate given that content such as multi-media software often is the product of a team effort. In the case of many new Internet products, this will require a wider distribution of such benefits among all contributors, including facilitators, mentors, instructional designers, and content experts (See Stein (2001) for a model of distribution based on practices in the entertainment industry).

How state institutions recognize intellectual property rights of faculty may be affected by whether a state's law treats such "recognition" as, in fact, a "gift" of state-owned property to a private person. A general state prohibition against the gifting of public property to private persons can be construed to include intellectual property. It would avoid potential controversy to have a state statute or authoritative ruling that clarifies ownership issues as between faculty members and state educational institutions. In considering the division of ownership, some educational institutions have concluded that the materials related to most courses are not likely to generate significant revenue. Therefore, rather than needlessly create friction with faculty, some institutions have decided that they lose little by generally leaving intellectual property rights in the faculty unless the institution has provided the faculty member with resources that "go beyond what is traditionally provided to faculty members." Where the institution does "invest" additional resources in a particular project, it is important that by policy and/or individual agreement both the faculty member and the institution be clear about their respective shares in the rewards of the joint venture.

Regional, State and Institutional Partnerships

Faculty issues have been and should remain a fundamental responsibility of institutional leadership and shared governance systems with faculty. The growth of e-learning does not change this responsibility, but it does place it in a broader context. The efforts of a number of successful for-profit institutions and large multinational distance learning providers have demonstrated the advantages of centralized curriculum development. Independent institutions, through consortial arrangements, are finding important economies of scale in outsourcing and the development of joint programs and degrees. These successful endeavors are instructive, and their implementation strategies can be effectively used by states in the e-learning environment. The efforts among public institutions to move in these directions, as witnessed by the explosion of state "virtual" campuses or similar consortia in the past five years, is a positive step. Many of these initiatives are designed to share academic resources

and services to reach both economic and academic efficiencies. At a regional level, SREB's *Electronic Campus* initiative seeks to support such sharing of courses and programs.

SREB is urged to continue to play an important catalytic role in disseminating best practice, brokering cooperative approaches, breaking down trade barriers, and encouraging policy development that supports greater commitment to human resource development in all institutions. While neither SREB or its states can define the specific nature and role of the faculty at any institution—nor should they—each can play a role in supporting a policy construct that recognizes the value of teaching and the importance of encouraging and preparing faculty to best serve students. Only through such concerted efforts to broaden understanding and to provide forward-thinking leadership can the full potential of the human and technical resources be realized.

Appendix

Illustrative Practices at the System and Institutional Level

Teaching and Learning Effectiveness

- ? **The University of Central Florida's primary training tool is an online course that faculty must complete prior to developing their own online courses. IDL6543 is a media-enhanced, non-credit course for faculty that models how to teach online using a combination of class meetings, labs, and web-based instruction. The purpose of this "course" is to help faculty successfully plan, design, and develop online or media-enhanced courses. (See <http://reach.ucf.edu/~idl6543/>)**
- ? **The University System of Georgia (USG) has developed a collection of online courses that faculty can access, including an online teaching and learning course based on Praff and Palloff's book "Building Learning Communities in Cyberspace." The University System also offers a WebCT primer on how to use this course management product as well as a student orientation course that prepares students for the online experience.**
- ? **The Louisiana Board of Regent's Distance Education Initiative grant program, now entering its fifth year, focused heavily in its first few years on building faculty capacity to utilize technology and awarded a number of grants to institutions, and particularly cooperative arrangements among institutions, for training and development. As the initiative has matured and training has become nearly ubiquitous across the state, the program has moved to emphasizing how this expanded cadre of technology-savvy faculty can utilize these tools in areas such as teacher education, workforce development, and course sharing to reduce unnecessary duplication and to disseminate unique academic programs. (See http://www.regents.state.la.us/lasrec/main_degrants.htm)**
- ? **The Maryland Higher Education Commission's Faculty Technology Training Grant program is supporting efforts to train faculty to better understand and better utilize available technology to "enhance the educational atmosphere and meet the needs of the students in the twenty-first century." The grants, which encourage cooperative or consortial approaches that can impact large numbers of faculty, can be utilized to provide direct faculty training or to develop faculty training centers. In the latter case, a grant from this initiative supported the establishment of Maryland Faculty Online (www.mdfaconline.org) to showcase instructional resources, share best practices, and foster the collaborative development of teaching materials. (See <http://www.mhec.state.md.us/Publications/Grants/GrantsHome.htm>)**

- ? The University of Houston Clear Lake. Before it is offered, each course goes through a year production cycle, one semester for design, one for development and one for testing. During the production cycle, an instructional design team is assigned to each faculty member as noted below. In addition, a project manager sets the team for each course and monitors their progress by working with each team leader (typically the instructional designer). After a course has gone through testing and certification, the faculty member and support staff maintain it until significant revisions are needed. In such cases, the course goes back through development and testing.

Title	Design	Development	Testing
Faculty (SME)	1 release	1 release	Course credit ¹
Instructional Designer	.5 FTE	.5 FTE	.25 FTE
Web Developer	.5 FTE	.5 FTE	.25 FTE
Graphic Artist	.33 FTE	.33 FTE	As needed
Instructional Programmer	As needed	As needed	As needed
Multimedia Specialist	As needed	As needed	As needed
Editor	As needed	As needed	As needed

Resource Allocation

- ? Virginia Tech's Faculty Development Initiative is a four-year, cycling faculty development program to encourage grassroots involvement in integrating technology in teaching and learning. All faculty are offered an opportunity to attend a summer workshop at least once during the cycle and to receive new equipment and software as part of that effort. More than 400 faculty attend summer workshops each year, and many others attend one of the more than 70 "just-in-time" seminars and training sessions during the rest of the year. The cost of this comprehensive development over four years is approximately \$10 million, or \$2.5 million per year. Expenditures fall in the following general categories:

- ✍ \$1.1 million - computers for faculty (average cost of \$2,500 per person, with faculty choosing from a range of options - desktops to laptops)
- ✍ \$500,000 - workshop salaries and operations; software, workshop materials and operations, as well as instructors (faculty paid to teach their peers), TA's, and staff (average cost of \$750 per person)
- ✍ \$200,000 - refreshing computers labs across campus with equipment and software (to ensure students access and provide labs for teaching)
- ✍ \$200,000 - refreshing classrooms across campus with appropriate technology for teaching

¹ Faculty have the option of offering the course to students for course credit in "test mode" or testing the course on their own time with limited students and support for design team members. No distance education fee (typically \$100 for Web courses) are charged for courses that are offered and advertised as in "test mode."

✍ \$500,000 - personnel and operations for year-round support of learning infrastructure (just-in-time workshops and walk-ins in New Media Center, licenses for learning management systems, and salaries for staff support)

? The University of Houston Clear Lake estimates that it spends approximately \$70,000 to produce each new e-Learning course. Staffing is the primary cost.

Restructured Undergraduate Courses

? Virginia Tech's Linear Algebra course is part of the larger "Math Emporium" project, a 500 workstation computer lab staffed by faculty, teaching assistants, and undergraduate peer tutors. This course provides interactive tutorials, computation examples, an electronic textbook and online quizzes.

? University of Tennessee Knoxville's Intermediate Spanish hybrid course enrolled over 1,500 students in 57 sections in 1999-2000. The redesigned course has substituted online diagnostics work in place of one in-class period per week. Cost savings in excess of \$100,000 are expected.

? Tallahassee Community College's Composition course serves approximately 3,000 students in sections of 30 students each. Success rates in the traditional course have been poor, and considerable class time is spent reviewing student writing. The institution plans to substitute online tutors who can interact with students on a one-on-one basis to improve student writing.

? The University of Delaware's General Education Course in Nutrition. With term enrollments in excess of 1,500 students, this course and all materials are now fully available on the Internet. Class attendance is optional, with the majority of students choosing the web alternative.

Consortial IT Services

? The Connecticut Distance Learning Consortium provides application hosting, technical support, help desk services, faculty training, and application programming to all higher education institutions, public and private, in the state. Funds for infrastructure and technical support are granted from the legislature directly to the consortium, which then provides services and grants to the individual campuses. (See <http://www.ctdlc.org>)

Institutional Evaluation Tools

? Florida Gulf Coast University (www.fgcu.edu/onlinedesign/index.html)

? The University of Houston Clear Lake (<http://www.cl.uh.edu/webfac/>)

? Multimedia Educational Resource for Learning and Online Teaching (MERLOT). In the area of peer review, several SREB states and institutions have taken the leadership in founding and participating in the MERLOT Project. MERLOT has established criteria and a process for evaluating digital materials developed by individual faculty and instructional teams. These evaluations can be accessed and searched through the Internet (www.merlot.org). Both the level of use of materials by others as well as the evaluation rates can be used in documenting an individual or team contribution. Such documentation would be the equivalent of “citation counts” that are used in evaluating research. The evaluation criteria developed by MERLOT teams cover each of the following important areas:

- ✍ Ease of Use
- ✍ Legitimacy and value of the content
- ✍ Effectiveness of the digital object or material as a learning tool

Cooperative Programs in the South

? The Innovative Technology Center (ITC) of the University of Knoxville provides leadership, support, resources, and training necessary to help University of Tennessee faculty, graduate teaching assistants, and academic staff make effective use of technology in their teaching, both online and in the classroom. (<http://itc.utk.edu/default.shtml>)

? Sharing Content Online for University Teaching (SCOUT) is a product of the University System of Georgia. This web site is a dynamic place for faculty to preview quality online course materials before adopting them. Materials are derived from seven existing eCore™ courses. (www.alt.usg.edu)

? The Faculty Online Technology Training Consortium (Maryland Community Colleges) Supported by a \$700,000 grant from the Maryland Higher Education Commission, the consortium is based at Prince George’s Community College and involves 23 campuses. The group is currently developing online faculty training courses. (<http://www.mdfaonline.org/>)

? Great Plains Interactive Distance Education Alliance Program in Family Financial Planning. A post baccalaureate degree and certificate program is being developed among eight universities in Kansas, Iowa, Montana, North Dakota, Oklahoma, Texas, South Dakota, and Nebraska. Funds are being provided through the Learning Anywhere Anytime Partnership Program (LAAP) of the U.S. Department of Education. (www.okstate.edu/hes/gpdc)

- ? University of Georgia System e-Core™ Curriculum. Marketed by Georgia Globe (Global Learning Online for Business & Education), the eCore™ was developed by faculty teams, instructional designers, and other support personal from across the system. Courses are taught by faculty from any USG institution and offered through five institutions. Funding for the project was provided by the Board of Regents. (<http://www.georgiaglobe.org>)

- ? Tennessee Board of Regents Online Degree Program. Students are able to choose the college or university that will award their degree. All thirteen two-year colleges will deliver and award associate degrees, while all six universities will deliver and award bachelor degrees. Courses completed in the Regents Online Degree Programs will be entirely online and will be completely transferable among all the participating institutions which are fully and regionally accredited. The Regents Online Faculty and Staff have been trained in teaching, learning, and assessing the needs of online students. The Regents Online Courses have been designed for a 12-week semester in an interactive, asynchronous (accessing courses at your convenience) format. Advising, library services, student support, and other forms of student assistance have been enhanced for online delivery. Technical support for accessing course lessons and assignments will be available 24 hours 7 days per week. (<http://www.tn.regentsdegrees.org/>)

- ? Joint Doctor of Education (EdD) in Agricultural Education. Texas Tech and Texas A&M University are collaborating to offer a statewide program through Internet, interactive video, and other means to support small groups of students around the state. Implementation support has been provided by the W.K. Kellogg Foundation. (<http://doc-at-a-distance.tamu.edu/>)

- ? The Florida Community College Distance Learning Consortium. The Florida Community College Distance Learning Consortium consists of representatives from all 28 community colleges and the State Board of Community Colleges. It licenses and/or develops educational materials for use by all community colleges to increase student access, meet identified needs, and reduce cost. (<http://www.distancelearn.org/main.htm>)

- ? The University of Maryland, Baltimore and the U.S. Open University. Joint M.S. degree in Information Systems. (<http://www.open.edu/programs/Details.asp?ProgID=29>)

- ? Associated Colleges of the South Virtual Classics Department. With leadership from this association, 15 private liberal arts colleges have joined to form a single classics department. Plans call for expansion to modern languages and Latin American Studies. (<http://www.sunoikisis.org/SUNOIKInitiative.html>)

- ? University of Texas Medical School's Web-based Education in Clinical Laboratory Science (WebCLS) project is a collaborative effort between 10 partnering institutions from across the United States including: the University of Texas–Medical Branch, the University of Houston–Clear Lake, the University of Nebraska–Medical Center, University of Texas–Pan American, University of Kentucky–Center for Rural Health, University of Texas–Brownsville, Wharton County Junior College, Seminole State College, the National Laboratory Training Network and the Southern Regional Education Board. The goal of the web-based Education in Clinical Laboratory Science (WEBCLS) project is to develop, implement, and evaluate an interactive web-based curriculum model for baccalaureate level clinical laboratory science (CLS) education. This model will include web-based course materials for CLS, online interactive CLS course laboratories using video and animation, interactive discussion and chat sessions, online testing and evaluation, and a pilot demonstration of a virtual practice laboratory. In addition, to enhance program completion rates and certification exam scores, comprehensive online review materials will be developed. This curriculum will provide an articulation route for non-traditional associate degree clinical laboratory technicians (CLTs/MLTs) in rural, medically underserved areas of the United States who wish to obtain their baccalaureate degree. The courses developed will also provide continuing education and laboratory professional retraining material.

- ? A Joint Bioengineering School shared by Virginia Tech and Wake Forest University: Currently under development, the two institutions plan to offer joint degrees and courses using distance learning.

Intellectual Property Examples

- ? Stevens Institute of Technology in New Jersey has developed a draft policy on web-based course intellectual property rights which is being touted by experts in the field as a “model policy.” It establishes the institutions “commercial rights” to courses and developers “scholarly rights” to use the content without seeking the institution’s prior permission. (<http://attila.stevens-tech.edu/dof/intellectualprop.htm>)

- ? Ken Salomon, Dow, Lohnes & Albertson, PLLC
 - ✍ “Checklist of Issues for Evaluating the Adequacy of Institutional Intellectual Property and Employment Policies and Procedures for Electronic Courseware” (http://www.dlallaw.com/site/page_1.asp?section=4&subsection=3&seqa=0&seqb=0&seqc=0&PgId=597)
 - ✍ “Copyright Considerations in Distance Education and Technology-Mediated Instruction” (<http://www.dlallaw.com/site/docs/Aacc.pdf>)

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