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LIBRARIES ADDRESS THE CHALLENGES OF ASYNCHRONOUS LEARNING

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Institutional Context

In recent times most institutions of higher education have had to reconsider policies and procedures in the face of closer scrutiny. Traditions such as tenure, shared governance, and the focus on conventional degree programs are being challenged and modified as a result of pressure from governing boards and state legislators. Rising costs and declining budgets demand increased efficiency while changing demographics require programs that are responsive to a more diverse population of learners. The result is that academia is being compelled to operate more like industry in considering the needs of its clients. Reductions in state support at a number of public universities combined with additional regulation are leading to a renegotiation of institutional roles as state agencies. Both the benefits and constraints that state support imposes are being reconsidered in light of new economic realities.

Computing and Communications Technologies

While changing technology is not the cause of these phenomena, computing and telecommunications technologies are perceived by many to have the potential to deliver asynchronous instruction that will enable higher education to respond to its critics, meet assessment requirements, and garner sufficient revenue to remain viable in a new century. In response to user needs and demands coupled with changing computer technologies, libraries, in their role as the major information provider for institutions of higher education, have moved beyond automated access tools such as online catalogs and indexed databases. Online, libraries also deliver network-based journals, theses and dissertations, images, class materials, and regional and international news reports. Libraries collaborate with others in the academy (teachers, editors, and researchers) as well as with commercial publishers to provide online access to materials that support all learners, whether on campus or off--the traditional teacher and learner as well as those using networks for asynchronous education.

It is one thing to have the technological potential to extend educational programs and improve instructional quality and faculty productivity, but quite another to re-engineer the Academy. In recent years a series of books have been published that point to a decline in the quality of universities, especially relative to undergraduate education. These range from constructive, thoughtful critiques like Ernest Boyer's *Scholarship Reconsidered* and Derek Bok's *Universities and the Future of America,* to the shrill polemics of Charles Sykes' *ProfScam.* In all cases, the fundamental thrust of these works is that America's colleges and universities must be convinced, in the words of Ernest Boyer, "to rethink their relevance in today's world."

Academy vs. Corporate Values

This call for relevance and change surely reflects the fact that universities have delivered instruction, and their libraries have delivered resources and services in the same way for centuries. The causes are many, including the lack of resources for rewards which, despite efforts to the contrary, continues to emphasize research to the neglect of undergraduate education and the detriment of user (or customer) services orientation. The atomized discipline-centered organizational structure of academia also mitigates against innovation.

One more factor which makes the response to current attacks so difficult is that critics are applying corporate values as a measure of success to higher education's restructuring efforts rather than those criteria by which universities are accustomed to judging themselves. Donald Kennedy, former president of Stanford University, wrote,

> The traditions of the academy strongly favor individuality and creativity. Freedom of action is highly valued. Accountability is viewed as much less important than independence. The introduction of norms that emphasize hierarchy, team loyalty, and discipline is difficult, not because they are not worthwhile values, but because these values are not deemed especially important for teaching or scholarship. They create a dissonant kind of bewilderment, if not outright hostility.

Asynchronous instruction and the delivery of information through the network are by their nature collaborative, not solitary activities.

What about the relationship between students and libraries in this new environment? In fact, learners often realize before teachers, the importance of the role libraries play for students engaged in distance education. Additionally, accreditation plays an important role in motivating universities to provide strong library support, according to both the Southern Association of Colleges and Schools' accreditation criteria and the Association of College and Research Libraries' "Guidelines for Extended Academic Library Services." Changes in information technology will modify the mechanics of higher education's degree-granting process, which in turn will require educational support services such as those provided by libraries to be delivered through the network. As a consequence, higher education and the services provided by its libraries are be radically changed.

What does all this mean for academic libraries? As the entity responsible for serving the information needs of the university, academic libraries appear to have little choice but to change dramatically. Like the institutions with which they are affiliated, some factors which make change inevitable. Note especially decreased resources, increased costs, and changing patterns of scholarly communications.

Some Factors Which Make Change Inevitable

- decreased resources
- increased costs
- pressure for additional productivity and accountability
- information explosion
- network-based information delivery
- changing patterns of scholarly communications
- asynchronous and off-campus instruction
- paramount importance of computer and telecommunications expertise

Libraries are responding to these forces by aggressively adapting state of the art technologies. Despite encouraging technology initiatives, however, libraries have been slow in adjusting their organizational structures and processes to leverage their potential. In the words of Vartan Gregorian, former president of Brown University, "The new technology per se is not a revolution--the revolution is the difference that technology makes in how we organize, structure, and empower our lives."

Replies to a 1996 Association of Research Libraries survey indicate that change in the libraries at this time is incremental rather than dramatic. It is possible, nonetheless, to see patterns emerging particularly relative to resource reallocation and the formation of partnerships with other university units that reflect new priorities and emphasize new networked resources and services.

Results of Library Restructuring

- personnel from technical to public services
- staff training and development
- more resources for automation and networking
- hiring outside of Masters' in Library Science
- interlibrary cooperation
- grants

[This presentation is a summary of our article which has been submitted to the *Journal of Asynchronous Learning Networks,* [http://www.aln.org/]. Please consult it for much more detail about the survey's findings.]

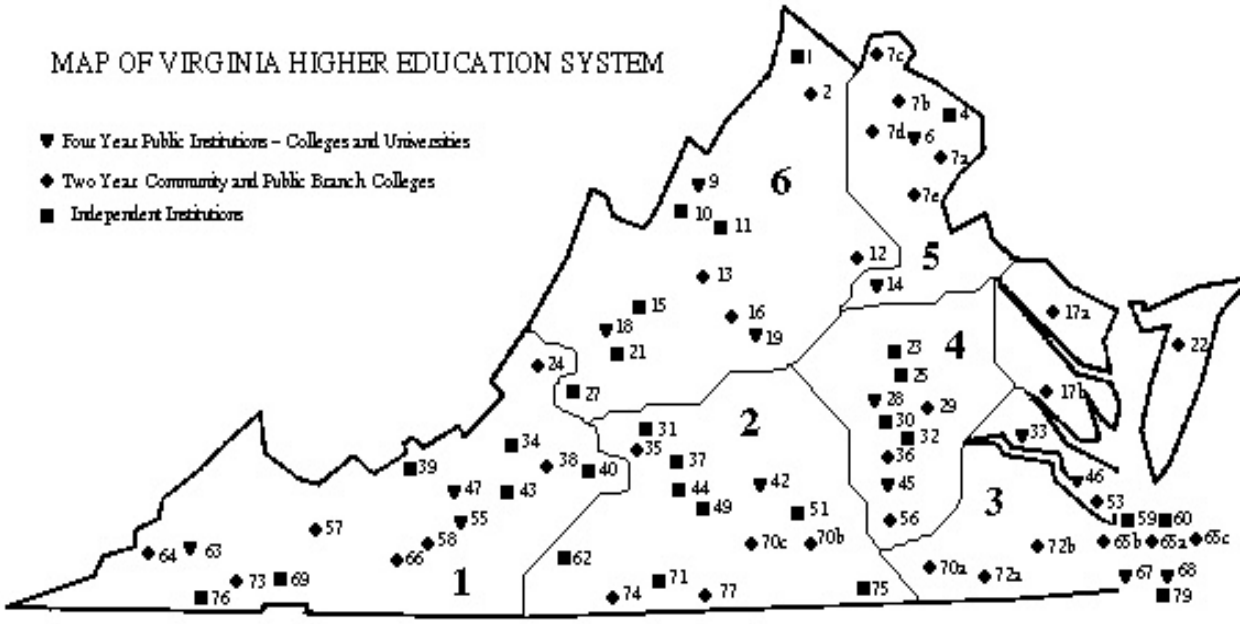
The survey data provided predictable conclusions. The challenge for research libraries during this time of transition is to maintain current services while building an infrastructure to support the information needs of the next century. In the early 'nineties, 44 academic libraries produced strategic plans which "revitalized thinking, and enabled the libraries to review services and effect organizational change." With several notable exceptions, research library restructuring and organizational change in the mid-nineties takes place at a slower pace. A variety of forces are currently at work, most notably declining resources, increased costs of materials, and the ability of communications technology to deliver information to the desktop. Libraries appear to be making continuous adjustments to these forces on an ad hoc basis rather than planning for comprehensive change.

The Virginia Experience

In the state of Virginia and at Virginia Tech, there are two initiatives currently underway that move libraries a giant step forward in the delivery of networked information. The first, the Virtual Library of Virginia (known as VIVA) involves all of the Commonwealth's academic libraries, while the second, the Electronic Theses and Dissertations Project (know as ETDs), is a nationwide effort led by Virginia Tech.

In the early 1990s Virginia began to build support for the lifelong learning essential to promote economic development for the people of the Commonwealth in the information age. In the summer of 1993 the Subcommittee on Networking of Virginia's Library Advisory Council proposed the foundation for the Virtual Library of Virginia (VIVA), requesting $5.5 million for the first biennium. Then and now, VIVA's mission is two-fold. It seeks to improve access for its faculty and students to collections, both the shared access to online library resources and the coordination of collection development by Virginia's academic libraries serving higher education. It also strives

to enhance support of interlibrary lending among the VIVA libraries. Its goal is to accomplish this mission through equitable, cooperative, and cost effective ways.



Initially funded at $5.24 million for 1994/96, the task of supporting electronic dissemination of VIVA's information resources is distributed throughout the state at the libraries of the six doctoral-granting institutions. These hubs service their regions and operate as the central archive and the single source of access for purchased databases stored at individual sites for the use of all of Virginia's academic libraries.

In an attempt to answer some of the difficult, pragmatic questions involved in such an ambitious undertaking, VIVA's leadership developed "Principles of Selection Criteria." Establishing a model for asynchronous learners, the "Statement of Principles" reveals that "VIVA seeks to provide students and faculty anywhere in the Commonwealth [with] convenient access to the information resources needed to support the missions of its parent institutions, including distance education and other evolving programmatic initiatives." VIVA is positioned strategically to exploit fast-moving changes in scientific and scholarly communication, to be a catalyst for such change, to facilitate the cost-effective acquisitions and distribution of intellectual resources which are specialized or which lend themselves to shared access.

Within the first year of operation VIVA established the technology base necessary to deliver information in all electronic formats to all the academic libraries. VIVA also purchased a number of electronic collections, including online indexes and full-text English and American literature databases.

www.viva.lib.va.us

Early successes were important and provided 'proof of concept' for future budget requests. Once basic virtual library user needs had been met, VIVA negotiated for more specialized scientific and scholarly resources. VIVA's leadership continues to seek opportunities to deliver information faster and more inexpensively and to demonstrate and encourage cooperation with scholarly or scientific societies. It strives to retain the organizational and technical flexibility necessary to respond to the rapidly changing marketplace. As conceived at the initial Library Advisory Council meeting, VIVA meets important criteria. It serves the core value of Virginia's academic libraries, connects with societal needs, and looks beyond organizational boundaries.

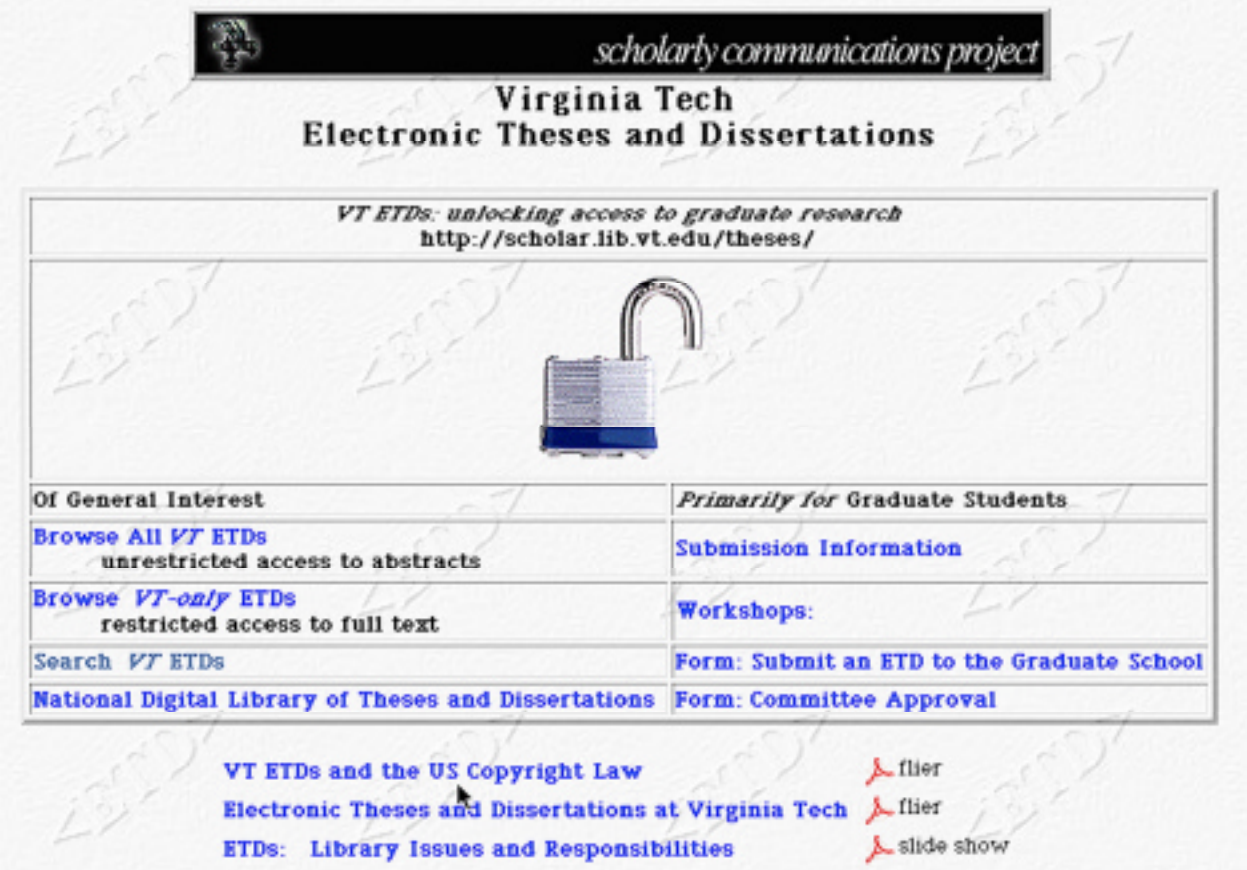
Funded at a similar level for a second biennium, 1996/98, then-director of Virginia's State Council of Higher Education, Gordon Davies declared: "The virtual library project provides evidence that investment in cooperative technologically based projects can produce new ways of doing business and dramatic changes in efficiency and effectiveness."

Cooperative electronic collection development and management has led to financial benefits for the institutions and, therefore, for the state. During the first three years, VIVA purchased materials worth $17 million for just $3.3 million. The Advisory Committee's second budget proposal summarized the role Virginia's libraries play in the state's effort to revitalize higher education through technology. "As institutions of higher education restructure to improve faculty and staff productivity, use technology, enhance learning, and avoid duplication, VIVA enables libraries to play an important role in that transformation by providing networked information resources that can be used by teachers and learners in a "virtual" learning environment."

In addition to purchasing databases and resources, the Virtual Library of Virginia provides a central access point to digital resources originating from the participating libraries such as those available from the Scholarly Communications Project at Virginia Tech's University Libraries.

http://scholar.lib.vt.edu

Since 1989, the Project has created a variety of partnerships with units and individuals within the university community to produce unique online resources particularly suited to asynchronous learning and the beginning of its virtual library. Through partnerships with individual faculty, the Scholarly Communications Project publishes 17 electronic journals, designed the library's electronic reserve system that delivers online class materials, and hosts a unique and growing digital image database, among other things. In a partnership begun four years ago with the Graduate School, SCP developed and implemented procedures for online student submission of approved theses and dissertations, resulting in permanent archiving and timely public access to graduate student works. As of September 1997, over 500 electronic theses and dissertations are available from Virginia Tech through the World Wide Web at http://scholar.lib.vt.edu/theses.



http://scholar.lib.vt.edu/theses

Electronic Theses and Dissertations, ETDs, are deserving of attention today because they clearly demonstrate the results of student, faculty, administrative, and library collaborations that benefit the new learning environments. This is also an example of how libraries (independently and through collaboration) improve services and increase the wealth of information available even during continuing tight fiscal realities.

For decades university libraries and archives have stored and occasionally circulated, the final products of graduate students' education--doctoral dissertations and masters' theses. One of the newest forms of online scholarship, these graduate student works are being effected by the ready availability of the Internet and the World Wide Web in colleges and universities, as well as homes. The reasons for this are many and some of them impact higher education in ways not felt for quite some time. With ETDs libraries have taken the initiative to address issues such as online archiving, unrestricted access vs. limited access, and intellectual property considerations, all of which generated questions about who should control academic publications and library resources at institutions of higher education. One issue that has come to the forefront is the role of scholarly publications in the lives of the professoriat. Once one begins to question the constructs of the "ivory tower," then peer review and the role of publications in the tenure process come into question but some feel that ETDs will make it more difficult for their authors to become traditional published faculty.

Some Goals of the Electronic Theses and Dissertations Initiative

- Graduate research results become more readily and more completely available

- Graduate education improves by sharing ETDs
- Universities unlock intellectual property
- Libraries improve services without increasing staff
- Graduate students learn about electronic publishing
- Graduate students save money
- Libraries require less shelf/physical space
- Continuous online access

Discussion began at Virginia Tech over a decade ago. Today nearly two dozen universities around the United States and abroad are also discussing the goals of our ETD initiative and some are prototyping their own initiatives. Note especially that with electronic theses and dissertations libraries will serve more users without increasing demands on staff, eliminating the need to bind, stamp, security strip, and label, as well as to circulate and reshelve materials; and that we can provide continuous online access for browsing, searching, and following links to related works and resources on the Internet.

The preparation and the sharing of ETD drafts fits well among the tenets of asynchronous learning--the independence of time and place of the participants. Asking for ETDs in a format such as Acrobat's PDF (Portable Document Format) was initially very important, especially as a 'proof of concept,' so that authors as well as their readers would not be tied to one computer type nor to a single word processor. In addition, the Acrobat Notes feature enables the exchange of editorial comments without requiring the exchange of the full document over the potentially crowded information superhighway. Asynchronocity need not inhibit progress toward completion of graduate studies when electronic theses and dissertations are the accepted form of the terminal work.

The finished product, once approved by the Graduate School, also allows the library to expand its roll as a digital library providing access to important learning tools and finished research independent of the time and place of the library user. Because asynchronous learning does not tie a student to an educational institution, a Networked Digital Library of Theses and Dissertations will contribute to maximizing access and services by encouraging simultaneously distributed and centralized access. The ETD initiative at Virginia Tech has a universitywide advisory committee as well as a steering committee of representatives from a variety of professional associations, institutions, government agencies, and businesses in the United States, Canada, and Great Britain. These are the universities that have made a commitment to participate in the Networked Digital Library of Theses and Dissertations.

- Clemson University
- Concordia University
- Darmstadt U. of Technology
- Florida Inst. of Tech.
- Michigan Tech
- Naval Postgraduate Sch.
- North Carolina St. U.
- Rhodes University
- Rochester Inst. of Tech.
- University of Florida
- University of Georgia
- U. of New South Wales
- U. South Florida
- U. Tennessee, Knoxville
- U. Tennessee, Memphis
- U. of Virginia
- U. Hawaii, Manoa
- Vanderbilt University
- Virginia Tech
- West Virginia University

Another role that ETDs are playing is as a catalyst for change among commercial enterprises, such as publishers and database aggregators. Some publishers fear competition that unlimited access to an ETD may give a derivative article in a commercial scholarly journal and this is what has received national attention through reports on National Public Radio, the *Chronicle of Higher Education,* and the New York Times, as well as various regional newspapers. Contrary to the popular press's reports, many editors recognize the vast difference between the original chapter in a dissertation that is drastically rewritten to become a scholarly journal article and is submitted to rigorous peer reviews before being accepted for publication. In these cases the ETD can be a reference citation included in the article for those interested in the other details surrounding the topic.

Yet another factor effecting ETDs is that recently some graduate students have begun to publish articles prior to including them as chapters in their dissertations. This causes new problems when authors relinquish *all* their copyrights to the publishing agents because, when the graduate students are ready to complete their dissertations, they must seek permission from the assigned copyright holders to include their articles as chapters in their *own* dissertations. Some publishers are afraid ETDs will diminish the popularity of their journals and that they will lose *possible* revenue by letting the original authors establish (through their universities) free Internet access to the articles.

Naturally, the universities feel that the publishers should not be in the position of dictating when or how their graduate students' works can be made available. After all, the mission of a university such as Virginia Tech, and other land grant universities in particular, is to disseminate the knowledge that is gained as a result of the study, teaching, and research of its faculty, students, and staffs.

When publishers continue to feel threatened by the exposure of the full ETD on the Internet, access has been restricted to the originating campus. This definitely impedes the work of other researchers who are denied online access as well as restricting cooperating library privileges previously available through interlibrary loan. Every learner then becomes a slave to the place, if not time constraints, that can be even more limiting than traditional library services and dissertations sitting on the library's shelves.

That publishers can so influence universities to restrict access to their students' research and that of the future professoriat, should be overcome with time. The current situation benefits only commercial enterprises and does a disservice to researchers expecting at least the level of access equivalent to the works on paper. Universities that are working together to improve this situation and move asynchronous learning into the virtual university will have to tackle copyright issues in this arena and others associated with delivered education.

A number of actions recommend themselves to academic libraries as they address the challenges of serving asynchronous learners in addition to traditional students.

Libraries Take Action

- Develop partnerships to create new information delivery systems
- Invest in equipment and training
- Collaborate with faculty to develop online resources
- New assessment measures and processes
- Make the reward system match new priorities
- Potential to support 24-hour consultation
- Improve facilities for new technologies and information delivery systems

Conclusion

David Roselle, former Virginia Tech Provost and current President of the University of Delaware, said we should always remember that "the network is the center of the universe."

By the year 2020, there will be more options for people who want an education beyond high school. Many of these students will have different constraints and aspirations than do today's students. Technology-mediated asynchronous learning and network-based information delivery holds great promise. The innovation required to meet their needs will change what libraries do and the way they do it.