Electronic Dissertations at West Virginia University
Resources for Effective Promotion

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Abstract

Implementation of the West Virginia University (WVU) Electronic Thesis and Dissertation (ETD) program has proven to be one of the most effective marketing tools to promote the graduate research of our students, faculty and programs. A multimedia demo will be presented which highlights notable multimedia submissions of actual WVU ETDs, including video clips, still shots, and informational slides accompanied by musical background themes. The merits of adopting ETD and other digital document publication programs will be emphasized in terms of positive exposure for the student and institution, new modes of communication, facilitation of research via Web distribution, and cost efficiency. More importantly, the successes of digital library programs have contributed to a process that is transforming West Virginia's economy by shifting its base towards technology and diversification by providing academic research access to the world.

Preface

Background

In 1998 WVU implemented a requirement that all master's theses and doctoral dissertations be submitted in electronic format, and the resulting digital archive was made available on the World Wide Web. WVU was the second institution in the world to have implemented a required ETD program. Students are given a variety of access levels ranging from "World" to "No Access" in order to protect the student's research and publishing endeavors.

ETD Goals

The goals of the WVU ETD Program are for students to learn about electronic publishing and digital libraries, to provide for timely technology and knowledge sharing, for Universities unlock the potential of their intellectual property and products and to improve library services. Through the achievement of these goals WVU is transforming graduate education and research.

NDLTD Consortium

WVU is a charter member of the Networked Digital Library of Theses and Dissertations (NDLTD) consortium, founded in 1996 at Virginia Tech. There are over 150 institutional members worldwide; however, most members have only implemented preliminary studies or pilot programs. More academic institutions need to require ETD submissions in order to achieve the NDLTD vision of globally federated digital library of graduate research. The good news is that the critical mass necessary for this to happen should not be to far away. National efforts have been underway for several years in Australia, Canada, Germany and Portugal; these projects have so far met some success. As of summer 2002, the University of Texas at Austin has begun to require ETDs as well. UT at Austin has the largest graduate program in the United States, so the progress of its ETD program will be closely watched, and as is predicted by academic librarians, will most likely encourage a tremendous commitment among pilot consortium members.

Program Implementation Considerations

Successful implementation required much advance planning about the ETD server and software, Web information site, administrative policy and task force, public relations, training and information, computer lab assistance, technical support, as well as providing access to the ETD collection. It is vital to have support from top-level administration, the Graduate School, the University Library, faculty and students. Support was achieved by including the ETD Program in the Information Technology Strategic Planning documentation, recruiting a dedicated and caring implementation team, developing networking both social and virtual, through education, promotion, press releases and publication, by engaging discussion, designing careful planning, building a support infrastructure, and setting reasonable timelines for implementation.

WVU Team Collaboration

At the invitation of the Southern University Regional Association and the NDLTD, the WVU Office of Academic Affairs and Research along with the University Libraries initiated the ETD movement on the WVU campus in 1997, spurred by a personal interest of the Provost and

the Library Dean.* It should be noted that WVU operates under a decentralized graduate programs structure, whereby the Office of Graduate Education oversees graduate programs at the institutional level, while individual colleges and schools maintain respective accreditation authority, and the University Libraries handle thesis and dissertation submission issues in lieu of the traditional "Graduate School" approach. An ETD Task Force comprised of administration, faculty, staff and student representatives was appointed to oversee planning, policy, administrative, legal, educational, and technological issues. The Office of Information Technology Customer Support unit provides student technical support, workshops, walk-in clinics, Web resources and specialized technical services by appointment. The Office of Academic Computing provides computer labs, database implementation and maintenance, programming and archiving services. And finally, the University Libraries provides submissions advising, review and approval, Web resources, cataloging, reference and document delivery and archiving services.[1]

Strategic Directions

As part of planning initiatives for the new millennium, in 1999 the University President's Information Technology Advisory Council studied the University situation and compiled recommendations in a Strategic Plan entitled "Empowering the University Community through Information Technology", the plan was approved and implemented on campus. The goals of this plan were to engage students, empower the faculty, infuse the curriculum, and enhance the Universities' research capabilities to fulfill the duty to serve. The inclusion of an ETD program as part of the master plan helped to spur interest and implementation in other areas of digital collections and campus support for world class technology and computing facilities and services. The WVU ETD program was nurtured through the support of university administrators, the education of graduate faculty, students and staff, and a collaborative spirit between various diverse groups on campus. The merits of adopting ETD and other knowledge management SYSTEMs was emphasized in terms of positive exposure for the student and institution, facilitation of research via Web distribution, and cost efficiency.[2]

WVU ETD Program Implementation Case Study

The benefits of having an ETD program on campus have greatly outweighed the costs incurred to implement and maintain. The following outlines the cost and benefit considerations to the University and students. Only existing staff have been utilized, minimal hardware investments were incurred, and in the case of the Libraries, money is actually saved by the elimination of physical handling and binding costs and the reduction of shelf space.

Cost to Students

Master's Theses:
$55.00 submission fee
- UMI submission + $10 library archiving fee*
- $45.00 copyright fee (copyright service is optional)

Doctoral Dissertation:
$65.00 submission
- UMI submission + $10 library archiving fee
- $45.00 copyright fee (copyright service is optional

*Note: The submission to University Microfilms Inc. covers abstract service for publication in Dissertation Abstracts Online and the archival microfilm conversion or alternate digital preservation of the original electronic document. The Library archiving fee is factored in to help defray potential future costs for collection migration and maintenance.

Web Distribution Options: Student Submits ETD Online

The ETD is made available according to student's Web distribution choice. The available options are as follows:

World

All students are encouraged to consider making their ETD available to the world without restriction.

Campus Only

Students who are unsure of their prospective publishers' stance on Web distribution of an ETD generally use this option. Limited to on-campus access, interlibrary loan (ILL) electronic or print access, restricted up to 5 years.

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1   Gerald Lang / Proceedings presented at the Third International Symposium on Electronic Theses and Dissertations, March 2000. Straight Talk: Provosts' and Deans' Views on ETDs: *http://www.wvu.edu/~thesis/Presentations/Straight_Talk.pdf*
2   Source: *http://www.wvu.edu/~cir/plan/empower.pdf*

Campus Encrypted

Students who have a derivative journal article already published or soon to be published generally use this option, where the publisher has requested at least initial restrictions. Documents embargoed by personal request are limited to campus-only access and are encrypted (password protected). ILL print-only access, restricted up to 5 years.

No Access

This option is reserved for students who have a patent pending or whose research has involved proprietary data. ETDs are withheld from public access for one year following submission. Embargoed up to 1 year.

Realities of Digital Publishing

With the advent of Web distribution of ETDs, students and faculty are often faced with publishing concerns. They are interested to know how publishers have reacted to submission of derivative articles from ETDs. Additionally, how will University tenure SYSTEMs be impacted by the proliferation of digital publishing? Is digital publishing being recognized for basis of granting tenure and promotion to university faculty?

Web Posting Is Not Prior Publication

According to Eugene Garfield, Chairman Emeritus of ISI® and publisher of the Scientist®, "the role of the journal should be as a disseminator and archive for the academic record, and as a peer review facilitator. Redundancy is part of long-term educational process, and so self-acknowledged archiving does not interfere with but rather enhances the peer review process. Ultimately, economics will convince publishers to adopt liberal Web policies". * Garfield has found that if a given topic is interesting enough to a particular audience, they will take interest not only in the freely available original Web distributed electronic material, but these same people are willing to pay to read the revised and peer reviewed version in print or electronic media distributed by the major publishers in the industry.[3]

Evidence from the WVU ETD Program

From 1998 to 2002 WVU has seen a 19% increase in the number of students willing to distribute their ETD worldwide without restriction, having grown from 56% to 75% in just four years time (see Figure 1). We have found that education is the key factor in determining how a student and committee members will approach the notion of Web distribution of the ETD.

As an historical note, in 1998, one year following implementation, the WVU ETD Task Force approved a new restrictive category "Embargo by Personal Request", which allowed for encrypted (password protected) campus only access. Initially created as a response to students in the humanities who were concerned about the prospective publishing issue and did not want Web distribution of their ETD to interfere, the Campus Encrypted option is now seldom used and only by students who have a derivative journal article already published or soon to be published at the time of graduation, where the publisher has requested at least initial restrictions. Print-only copies as requested through the University Libraries' interlibrary loan program provide alternate access to campus-encrypted ETDs, electronic distribution is prohibited. Students also have the option to limit UMI distribution, available upon request.
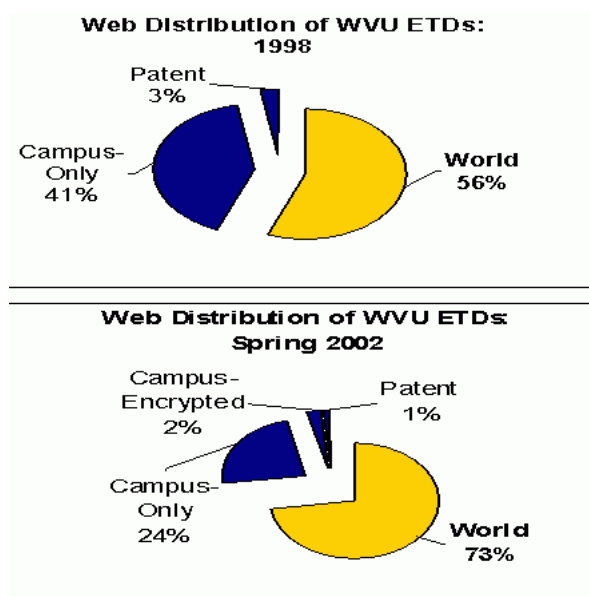

Figure 1: Web Distribution - Levels of Access

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3   Proceedings presented at the Third International Symposium on Electronic Theses and Dissertations, March 2000. Is Acknowledged Self-Archiving Prior Publication?: *http://www.wvu.edu/~thesis/Presentations/Garfield-Web-Publishing.pdf*

The Relationship between "Published" status and peer review

We find that the notion of prior publication (i.e. Web distribution) of an ETD is discipline dependent. For example, in the area of Physical Sciences the approach is non-restrictive. However, for the life and medical sciences, the emphasis is on the level of access, and for the social sciences, the emphasis is on the revision of content.[4] We could conclude from this evidence that myth and tradition create much of the miss-perceptions surrounding the issue of "publish-ability". In time, as more students and faculty offer their works online, and as publishers reorganize in response to this phenomenon, this will become a non-issue.

Ultimately, nothing has really changed in the fact that for most people, the thesis or dissertation as it is presented at the time of graduation should be considered a preliminary work, which is a very different thing from the revised and polished derivative journal article or monograph based in the original manuscript. In fact, as has been suggested, allowing unrestricted access to ETDs will enhance the peer review process, which would lead to expediting the process between preliminary work and final publishable product. And so it appears that for the moment publishers will continue to find their role as disseminators of the final peer reviewed journals. In the end, however, economics will be the greatest determining factor. In the continual pursuit to reduce costs, we have seen in recent years a proliferation and flourishing of peer reviewed independent electronic publishers, such as professional and academic societies, university libraries and presses. Commercial publishers will simply have to adapt by finding additional value added approaches while they co-exist with their independent counterparts. Recent statements from publishers such as Elsevier and Academic Press have revealed precisely the attitude that the Web distribution of ETDs in no way interferes with acceptance of revised and peer reviewed material for the formal final publication, but rather, in fact they consider the former (ETDs) to be advantageous in that they are free promotion of the latter (the journal article or book).[5] The fact that there are increasingly more students who are willing to grant world access, as evidenced at Virginia Tech and West Virginia University would ap-

pear to correspond to publishers' relaxed attitudes as well as a better informed academic audience.

Library Access to ETDs

The WVU Libraries offers a variety of access avenues to find ETDs. The MountainLynx electronic catalog offers direct online full-text access from the bibliographic citation. The ETD collection can also be searched and browsed directly from the WVU ETD Archive. The Libraries' Document Delivery Service offers access of restricted ETDs to participating interlibrary loan institutions. ProQuest (formerly UMI) offers free on campus access and publication-on-demand based access to the general public. And finally, the NDLTD offers a Web based Federated Search feature to search all ETDs around the world, and is currently working on building a Union Catalog of ETDs worldwide in a joint venture with VTLS Inc.

Library Access to Restricted ETDs

The University Libraries' Document Delivery Service offers access of restricted ETDs to participating interlibrary loan institutions. The respective institutions track all transactions, which prevents anonymous unauthorized access. Campus Only ETDs are freely available in electronic format, usually sent as email attachments. Printed copies are also available for a fee via the Library Copy Services unit. Campus Encrypted ETDs (embargoed by personal request) are made available in print format only. Restricted or "No Access" ETDs are secured from public access until patent and/or proprietary concerns have been resolved.

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4   Joan Dalton / Proceedings presented at the Third International Symposium on Electronic Theses and Dissertations, March 2000. Electronic Theses & Dissertations: A Survey of Editors and Publishers: *http://www.wvu.edu/~thesis/Presentations/ETD-Publisher-Presentation.ppt*
5   McMillan & Seamons / Proceedings presented at the Fourth International Symposium on Electronic Theses and Dissertations, March 2001. Electronic Theses & Dissertations: A Panel Discussion: *http://www.wvu.edu/~thesis/Presentations/Charleston_Conf_'01_ETD_Presentation.pdf*

West Virginia University Electronic Thesis and Dissertation Collection Profile Highlights

- Access to WVU ETDs has increased 145,000% over their printed counterparts
  (Figures 2 - 7)
- WVU ETDs have been accessed over 3 million times since inception in 1998
  (Extrapolated from Figure 8)
- WVU ETDs are accessed an average of 2,400 times per day, 75,000 times per month and over 1 million times per year
  (Figures 3 - 8)
- Over 93 countries all over the world access WVU ETDs
  (Table 2, Figures 9, 10)
- The most popular WVU ETD has been accessed over 15,000 times in the first year
  (Figure 11)
- As of Spring 2003 there were over 1,600 ETDs in the WVU collection (there are over 10,000 worldwide)
  (Figure 12)
- There are a growing number of multimedia ETDs being submitted to the WVU collection, (about 0.5% increase per year), including enhanced pdf, jpeg, mp3, html, XML, PowerPoint and movie formats.
  (Figure 13)
- WVU graduate students submit an average of 350 ETDs per year
  (Figure 14)

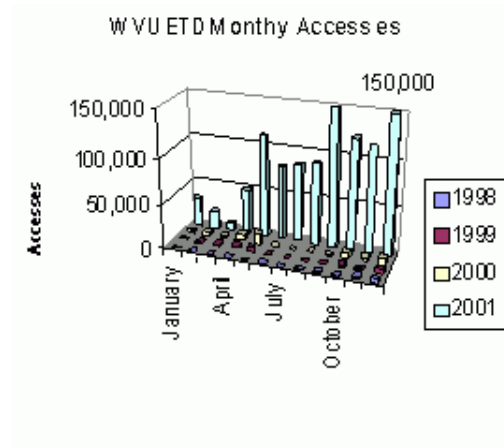*Figure 2: Thesis and Dissertation Print Circulation - Print Format vs. ETDs*
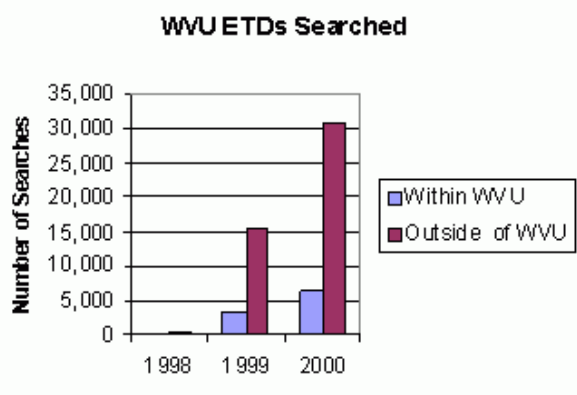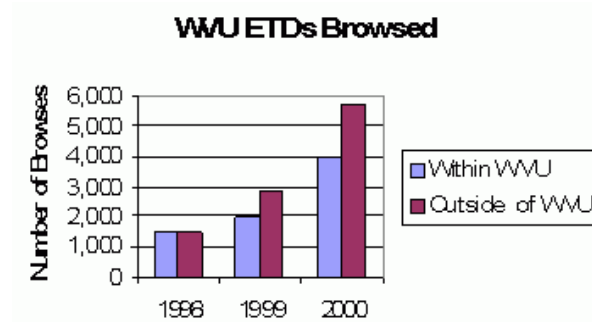

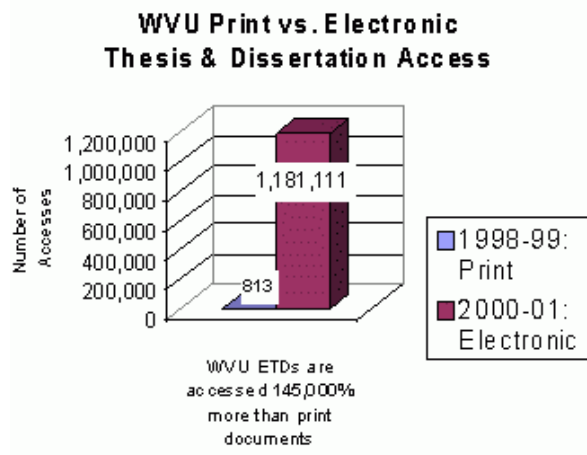*Figure 3: Monthly ETD Accesses*

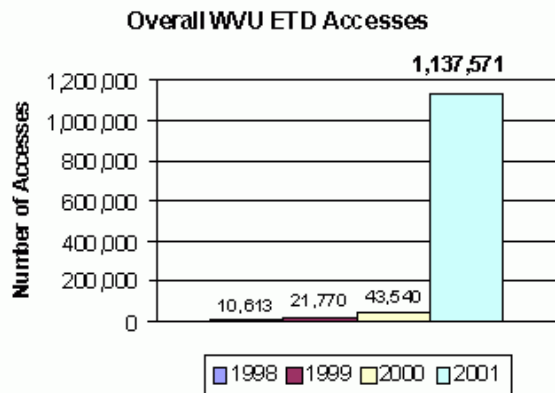*Figure 4: ETDs Searched*

Figure 5: ETDs Browsed
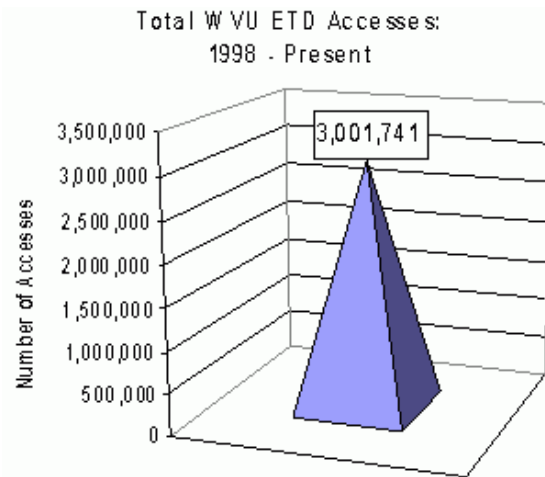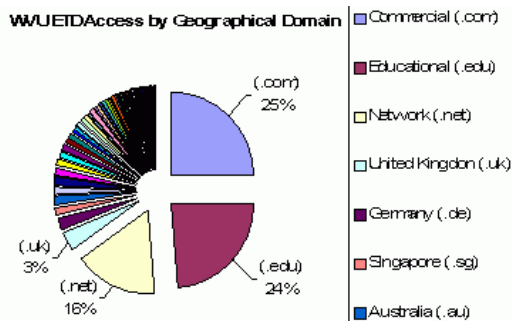
Figure 6: ETDs Accessed

Figure 7: Total ETDs Accessed

Table 1: WVU ETD Server Statistics
Breakdown by Geographical Location (January - June 2001) for etd.wvu.edu

Domain Name	Hits	Percentage		Domain Name	Hits	Percentage
Commercial (.com)	43,210	25.414%		Egypt (.eg)	219	0.129%
Educational (.edu)	40,957	24.089%		China (.cn)	217	0.128%
Network (.net)	28,533	16.782%		Czech Republic (.cz)	212	0.125%
United Kingdom (.uk)	6,060	3.564%		Hungary (.hu)	191	0.112%
Germany (.de)	3,709	2.181%		Trinidad and Tobago (.tt)	170	0.100%
Singapore (.sg)	3,275	1.926%		Slovakia (Slovak Republic) (.sk)	163	0.096%
Australia (.au)	2,787	1.639%		Peru (.pe)	161	0.095%
Spain (.es)	2,525	1.485%		Colombia (.co)	129	0.076%
Italy (.it)	2,480	1.459%		Jordan (.jo)	127	0.075%
France (.fr)	2,476	1.456%		Estonia (.ee)	127	0.075%
Japan (.jp)	2,342	1.377%		Lithuania (.lt)	124	0.073%
Canada (.ca)	2,183	1.284%		Brunei Darussalam (.bn)	120	0.071%
Malaysia (.my)	2,055	1.209%		Lebanon (.lb)	119	0.070%
United States (.us)	1,833	1.078%		Philippines (.ph)	102	0.060%
Government (.gov)	1,578	0.928%		Ukraine (.ua)	101	0.059%
Greece (.gr)	1,313	0.772%		Korea, Republic of (.kr)	100	0.059%
Belgium (.be)	1,308	0.769%		Costa Rica (.cr)	78	0.046%
Military (.mil)	1,274	0.749%		Bulgaria (.bg)	78	0.046%
Russian Federation (.ru)	1,212	0.713%		Namibia (.na)	70	0.041%
Brazil (.br)	1,210	0.712%		Yugoslavia (.yu)	61	0.036%
Indonesia (.id)	1,182	0.695%		Macedonia (.mk)	42	0.025%

Netherlands (.nl)	1,167	0.686%	Tanzania (.tz)	35	0.021%
Old ARPA-net (.arpa)	1,167	0.686%	Bosnia and Herzegovina (.ba)	35	0.021%
Portugal (.pt)	958	0.563%	Guatemala (.gt)	34	0.020%
Non-profit Organization (.org)	951	0.559%	Iceland (.is)	27	0.016%
Taiwan, Republic of China (.tw)	914	0.538%	Uruguay (.uy)	26	0.015%
Ireland (.ie)	902	0.531%	Belarus (.by)	26	0.015%
Turkey (.tr)	671	0.395%	Mauritius (.mu)	26	0.015%
Israel (.il)	655	0.385%	Dominican Republic (.do)	25	0.015%
India (.in)	571	0.336%	Yemen (.ye)	18	0.011%
Finland (.fi)	543	0.319%	Cuba (.cu)	18	0.011%
Mexico (.mx)	521	0.306%	Venezuela (.ve)	15	0.009%
Saudi Arabia (.sa)	519	0.305%	Honduras (.hn)	14	0.008%
Romania (.ro)	469	0.276%	Bhutan (.bt)	14	0.008%
Switzerland (.ch)	466	0.274%	.int	12	0.007%
Slovenia (.si)	466	0.274%	Oman (.om)	11	0.006%
Argentina (.ar)	462	0.272%	Malta (.mt)	11	0.006%
Croatia/Hrvatska (.hr)	461	0.271%	Pakistan (.pk)	9	0.005%
Chile (.cl)	435	0.256%	Iran (Islamic Republic of) (.ir)	9	0.005%
Sweden (.se)	431	0.253%	Moldova, Republic of (.md)	9	0.005%
New Zealand (.nz)	400	0.235%	Ecuador (.ec)	8	0.005%
Poland (.pl)	368	0.216%	Latvia (.lv)	8	0.005%
Thailand (.th)	359	0.211%	United Arab Emirates (.ae)	7	0.004%
Austria (.at)	347	0.204%	Fiji (.fj)	7	0.004%
South Africa (.za)	346	0.203%	Zimbabwe (.zw)	5	0.003%
Cyprus (.cy)	332	0.195%	Nicaragua (.ni)	5	0.003%
.host	310	0.182%	Former USSR (.su)	5	0.003%
Hong Kong (.hk)	303	0.178%	Cambodia (.kh)	4	0.002%
Denmark (.dk)	298	0.175%	Totals	170,026	100.000%
.	253	0.149%			
Norway (.no)	246	0.145%	Total Locations: 100		
Viet Nam (.vn)	233	0.137%	Nations Represented: 93		

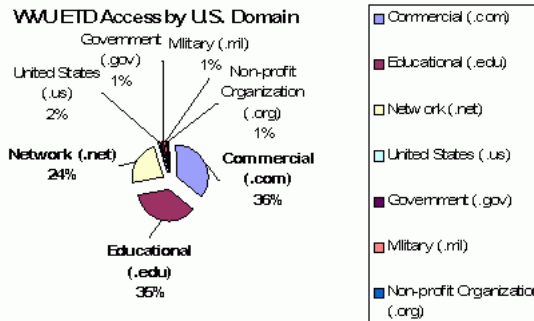*Figure 8: ETD Accesses by Geographical Domain*
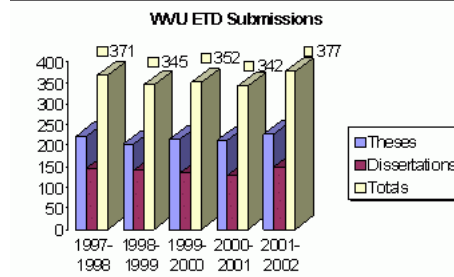
Figure 9: ETD Domestic Access

Figure 13: Number of Submissions per Year
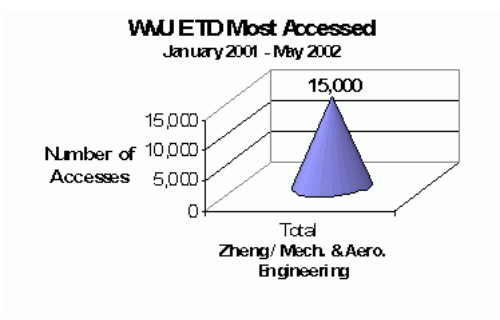

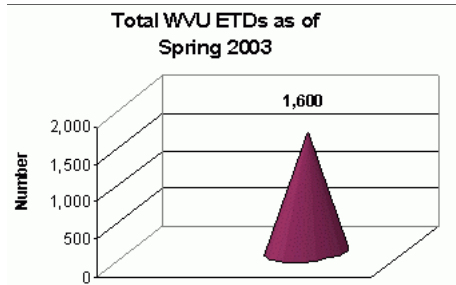*Figure 10: Most Popular ETD*
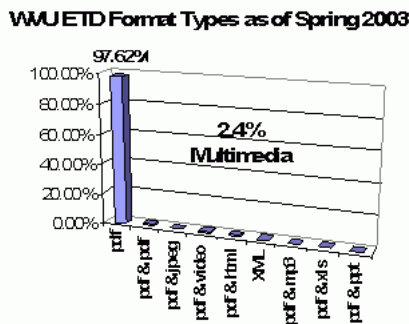

Figure 11: Total Number of ETDs in Collection

Figure 12: Format Types in Collection

New and Forthcoming ETD Program Features

The WVU ETD program is an excellent way for graduate students to market their research on the Word Wide Web. Students are currently encouraged to include curriculum vitae as part of their submission. Already, instead of distributing printed copies of theses or dissertations to prospective employers, students simply send a pointer to their online document; so self-promotion has become much easier. Plans are currently underway to launch several new applications for alumni, such as a Dynamic Addenda feature, which will allow students to maintain a secured professional Web links page adjacent to their thesis or dissertation link, which can be used for inclusion of addenda, errata, latest research or publications, updated CVs, etc. Additionally, Hit Counters for individual ETDs will be posted so students may track access to their own research, for use as evidence of the popular demand for their work.

Other forthcoming program features include a Multimedia Incentives program will be launched to provide stipend incentives for development of complex multimedia projects, to be funded by the WVU Office of Academic Affairs and Research. During the summer 2001 semester, an Automated Approval System was launched to serve as a secure Web interface for committee chair and library review and approval. Related to this SYSTEM is an Automated Batch Upload program to send approved submissions to UMI for abstract and archival processing. Also recently launched, the University Libraries has upgraded the electronic catalog "MountainLynx" to enable a Web Based Online Public Access Catalog, making possible seamless Web connections or Click-able URLs from the catalog to the ETD document. Currently a new SYSTEM is under development, perhaps the first major ETD migration effort of its kind, in which we will move from the Microsoft Access platform to an Oracle database application environment, scheduled for launch in fall 2003.

WVU ETDs transform the World

In December of 1999 I received a phone call from a visiting professor from Bosnia who needed access to a WVU Campus restricted electronic thesis on the topic of reconstructing power grids, in order to use upon return to his war-torn native land. WVU was able to send free electronic copy via interlibrary loan email attachment. Never before could this have been possible without the availability of the ETD program. There are countless examples of WVU information technology initiatives like this, which have helped to enrich and transform the world.

Positive Outcomes from Information Technology Implementation

Through WVU information technology planning, the WVU ETD program, as well as other information technology initiatives, there has occurred a heightened sense of awareness on campus of the profound effects of information technology. A rapid transfer of technology is taking place, transforming West Virginia's economy by providing research access to the world. Upon implementation, these information technology programs and services provide astronomical exposure, deliver greater benefit at less cost, all of which contribute to the research cycle. In the near future, controversies such as digital management of intellectual property issues will be resolved, most likely with the balance of control being returned to the rightful owner, the academicians and the research community itself. These technological initiatives have also brought diversification and stability into the State of West Virginia by replacing its dependence on a declining natural resource exploitive industry with a growing service and technologically oriented foundation. Additionally, the technology flow is reciprocal. Providing unrestricted access to WVU research benefits the world, and perhaps most significant, third world and under-privileged regions can find immediate benefit. This cross-diversification will prove increasingly fruitful as the growing global economy expands. In sum, education and technology continue to play an increasingly important factor in our lives. Continued investment by the University, the legislature and industry not only affirms the importance of information technology implementation, but also guarantees a brighter economic horizon. West Virginia University is becoming well equipped to fulfill the duty to serve. As we seek to improve the lives of everyone from the local to the international scene, we are truly seeing results.

Appendix

A copy of the accompanying multimedia presentation is available as follows:
  WVU ETD Demo (Flash exe Windows Projector)
http://www.wvu.edu/~thesis/Presentations/
WVU_ETD_Demo.exe

Bibliography
1,2,3,4,5: MULTIPLE : Proceedings of the Second, Third, Fourth and Fifth ETD Symposia. WVU Electronic Scholarly Resources Archive, NDLTD, Va Tech, WVU, 1999-2002 www.access.wvu.edu/esra/ESRASearch_VSearchform.cfm