



## ETD Implementation

**The Two Virginias and Their Strategies for Successfully Requiring the Electronic Submission of Theses and Dissertations**



## What is the situation?

- ◆ Universities generate substantial basic and applied research
- ◆ Documented in theses and dissertations
- ◆ Only some research revealed in scholarly journal articles
- ◆ Traditional theses and dissertations unused



## What is the long-term vision?

- ◆ ETDs are rich hypermedia works
- ◆ Graduate education more effective; and students more productive
- ◆ Universities publish university research
- ◆ Faster and better knowledge and technology transfer



## What are we doing?

- ◆ Improving content and availability with technology
- ◆ Educating future scholars to publish effectively using digital libraries
- ◆ Helping students be more creative in their scholarship
- ◆ Providing easy and widely available access to information

## 78 NDLTD University Members

Air University, Maxwell AFB, Alabama	Marshall University	University of Georgia
Australian National University	Miami University of Ohio	University of Guelph (Ontario, Canada)
Baylor University	Michigan Tech	University of Hawaii at Manoa
Biblioteca de Catalunya	Nanyang Technological U.(Singapore)	University of Iowa
Brigham Young University	National U. of Singapore (School of Computing)	University of Kentucky
California Institute of Technology	Naval Postgraduate School	University of Maine
Chinese University of Hong Kong	North Carolina State University	University of Melbourne (Australia)
Chungnam National U., Dept of CS (S. Korea)	Pennsylvania State University	University of New South Wales (Australia)
City University, London (UK)	Rhodes University (South Africa)	University of North Texas
Clemson University	Rochester Institute of Technology	University of Oklahoma
College of William and Mary	Shanghai Jiao Tong University	University of Pisa (Italy)
Concordia University (Illinois)	St. Petersburg State Technical U. (Russia)	University of Queensland
Curtin University of Technology (Australia)	Universidad de las Américas Puebla (México)	University of South Florida
Darmstadt University of Technology	Universidad Politecnica de Valencia (Spain)	University of Sydney (Australia)
East Carolina University	Universitat Autònoma de Barcelona	University of Tennessee, Knoxville
East Tennessee State University	Universitat d'Alacant	University of Tennessee, Memphis
Florida Institute of Technology	Universitat de Barcelona	University of Texas at Austin *
Florida International University	Universitat de Girona	University of Virginia
Freie Universität Berlin (Germany)	Universitat de Lleida	University of Waterloo (Canada)
George Washington University	Universitat Oberta de Catalunya	University of Wisconsin-Madison
Gerhard Mercator Universität Duisburg (Germany)	Universitat Politècnica de Catalunya	Vanderbilt University
Griffith University (Australia)	Universitat Pompeu Fabra	Virginia Tech
Gyeongsang National University, Chinju (S. Korea)	Universitat Rovira i Virgili	West Virginia University
Humboldt-Universität zu Berlin	Université Laval (Québec, Canada)	Western Michigan University
Indian Institute of Technology, Bombay	University of Colorado, Health Sciences Center	Wilfrid Laurier University (Ontario, Canada)
	University of Florida	Worcester Polytechnic Institute

## ETDs in the NDLTD

14 Air University	9 U. of Tennessee, Memphis
41 Australian DT Group	3 U. of Texas, Austin
2 Concordia University	17 U. of Virginia
50 Dissertationen (German)	23 U. of Waterloo
4032 MIT (scanning project)	<b>2360 Virginia Tech</b>
87 North Carolina St. U.	<b>485 West Virginia U.</b>
10 Pennsylvania St. U.	33 Worcester Poly.
24 Rhodes U. (South Africa)	
57 University of Florida	<b>T = 7255</b>
8 University of Maine	

## ETD Implementation Tour

- ◆ VA Tech
- ◆ WVU

## Support Elements Necessary for Successful Implementation

- Top level administrators
- Graduate School
- University Library
- Faculty
- Students



## How to Achieve Support

- Information technology implementation
- Recruit implementation team
- Develop networking
- Educate
- Promote and publicize
- Engage discussion
- Design careful planning
- Build support infrastructure
- Set reasonable timeline for implementation



## Va Tech Team Collaboration

- Graduate School
- University Libraries
- ETD Task Force
- Faculty: Governance, concerns, VT Advisory Committee, FDI



## *Status of ETDs at Virginia Tech: Graduate School*

- ◆ Jan. 1, 1997 began requiring ETDs
- ◆ Training workshops for graduate students
- ◆ Approval form for advisors and committees
- ◆ All ETDs reviewed by Graduate School staff



## VT ETD requirement: an outcome of faculty governance

- ◆ DRSCAP
  - Degree Requirements, Standards, Criteria, and Academic Policies Committee
- ◆ CGS&P
  - Commission on Graduate Studies and Policies



## DRSCAP Concerns

- ◆ Allow voluntary submissions with incentives prior to Jan. 1, 1997 requirement
- ◆ Establish university oversight committee
- ◆ Publicize the requirement widely
- ◆ Avoid significant burdens on departments



## Other faculty concerns

- ◆ Participation in decision-making lacking
- ◆ Notification of requirement not broad enough
- ◆ Harmful to future scholars



## *Status of ETDs at Virginia Tech: Library*

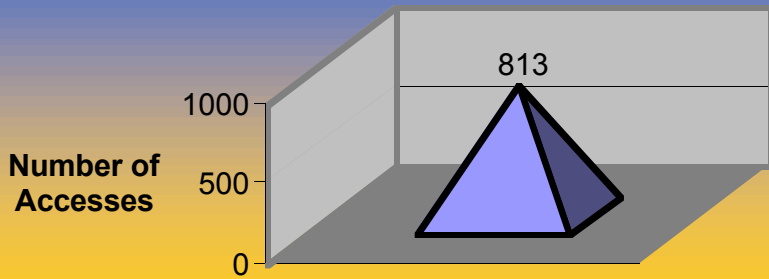
- ◆ Students submit via Web; Graduate School approves
- ◆ Held in secure directory if unavailable for patent/proprietary reasons
- ◆ Immediately available to university or world on Web
- ◆ Available through online library catalogs within 1-2 weeks
- ◆ Accessible by author or department and searchable using UltraSeek (OpenText, freeWAIS)
- ◆ Submission software: <http://scholar.lib.vt.edu/ETD-db/>



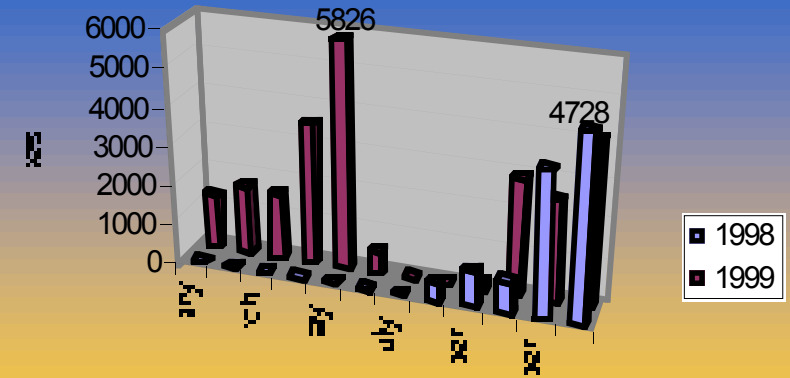
## WVU Team Collaboration

- Office of the Provost
- Office of Graduate Education (decentralized graduate programs)
- ETD Task Force
- Academic Computing
- University Libraries (Library ETD Implementation Team)
- Faculty Senate, Council of Deans
- OIT Advisory Committee

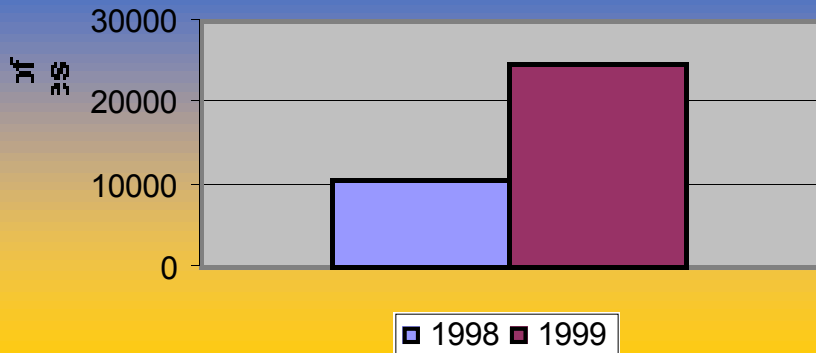
### WVU Paper TDs Accessed: 1998-99



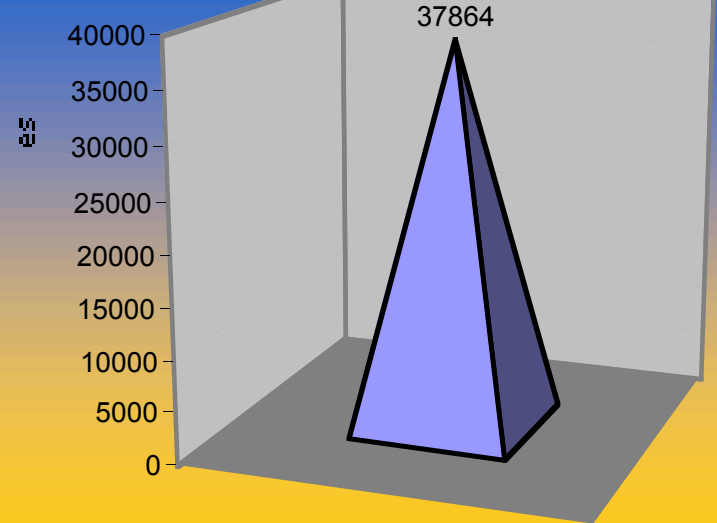
### WVU ETD Monthly Accesses



### Overall WVU ETDs Accessed

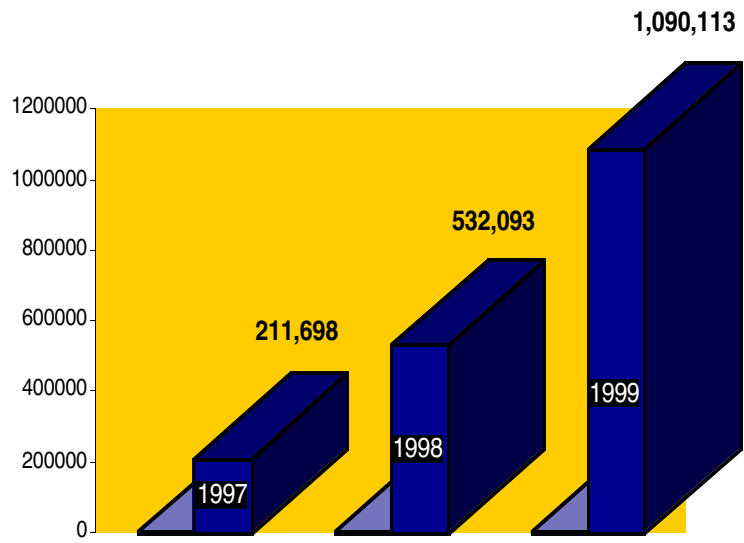


### Total WVU ETDs Accessed: 1998 - Present

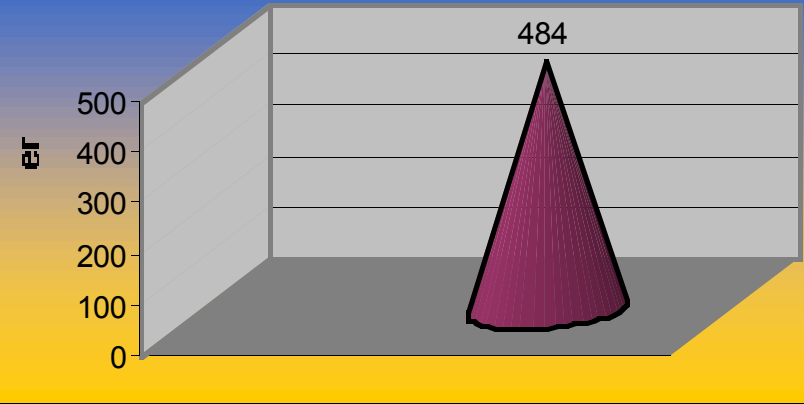




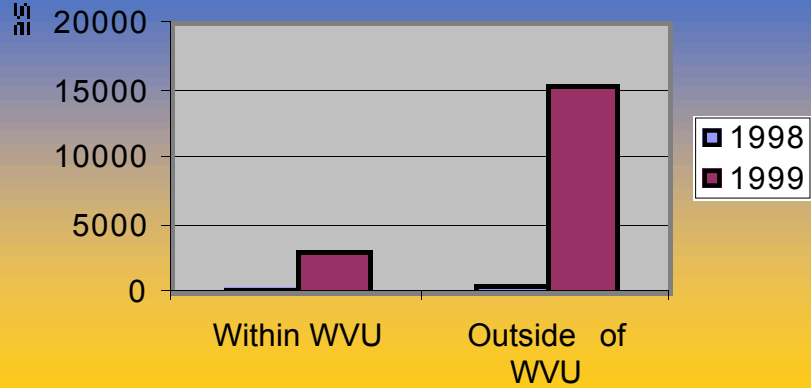
### Yearly Access to VT ETDs



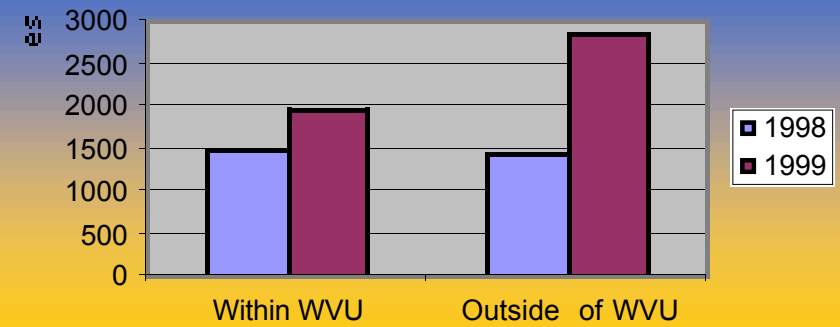
### Total WVU ETDs as of March 2000



### WVU ETDs Searched



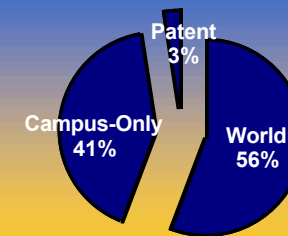
### WVU ETDs Browsed



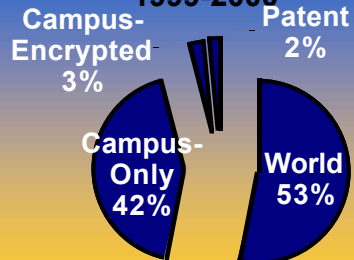
# ETD Usage at Virginia Tech

	1996	1997	1998	1999
Total requests	37,171	220,752	532,093	1,090,113
Daily requests	102	586	1,457	3,016
ETD requests	4,600	74,028	300,673	671,981
Abstract req.	25,829	109,420	210,833	217,796
Hosts served	9,015	22,885	35,593	77,062

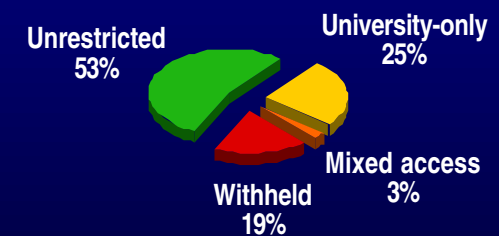
WVU ETD Web Distribution Type:  
1998-1999



Web Distribution of WVU ETDs:  
1999-2000

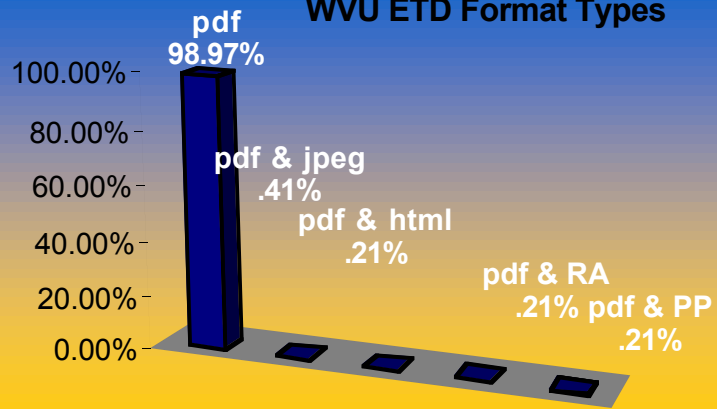


# VT ETDs: AVAILABILITY

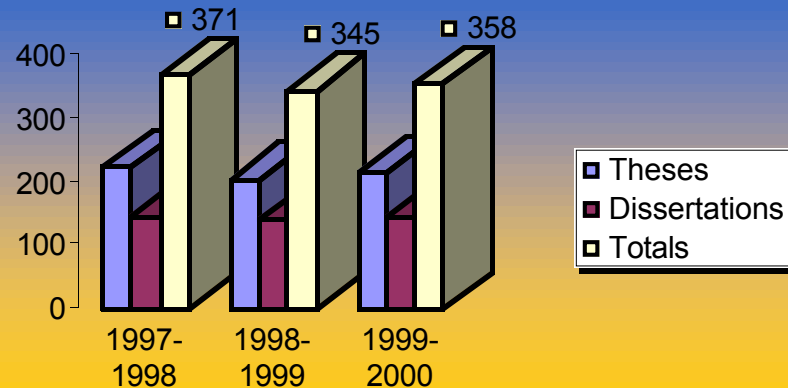




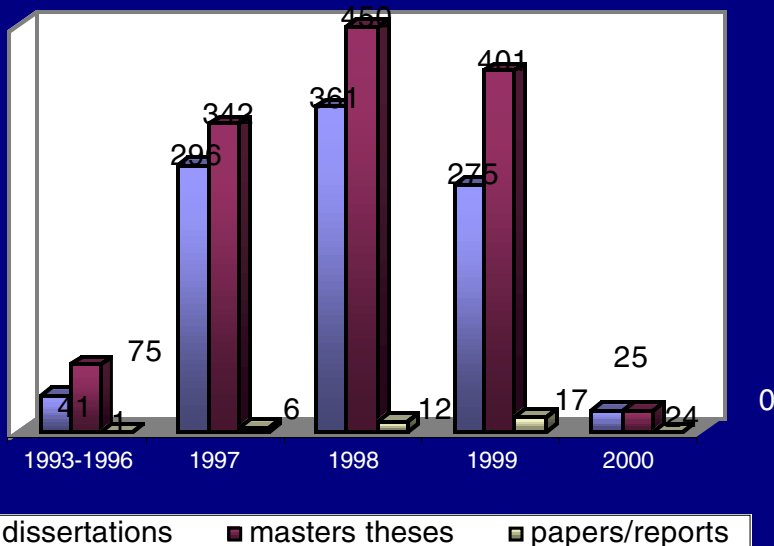
### WVU ETD Format Types



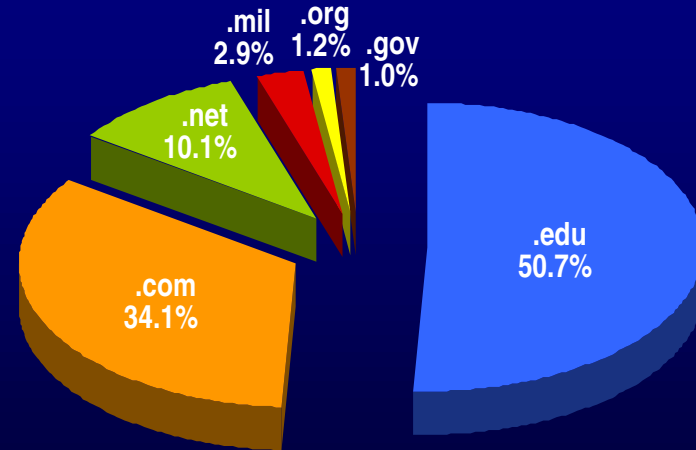
### WVU ETD Submissions



### VT ETDs Submissions: 1993-2000

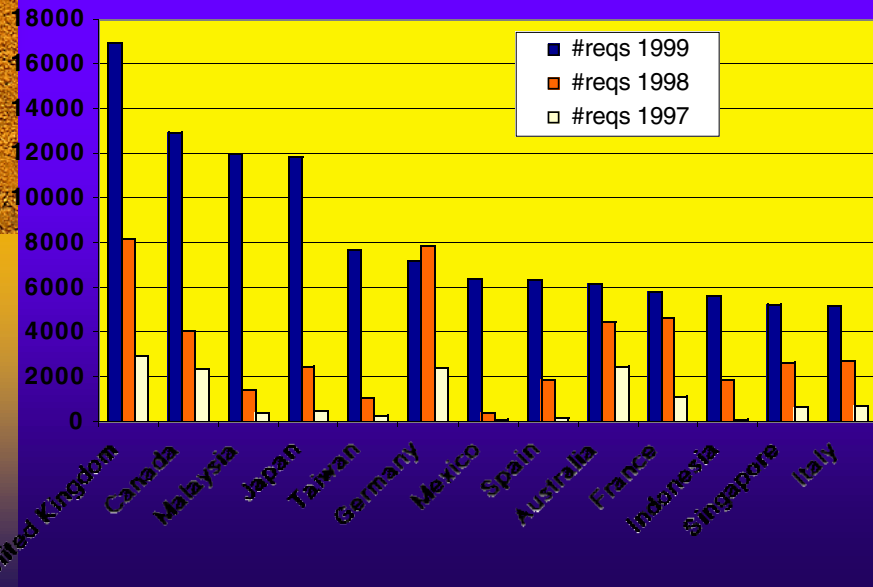


### National Use of VT ETDs

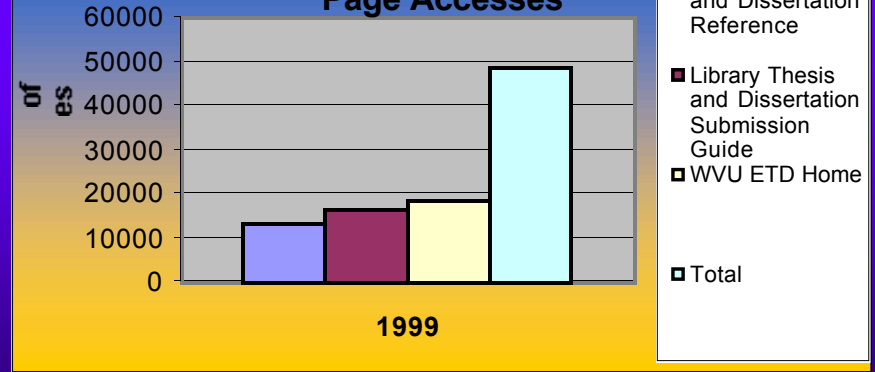




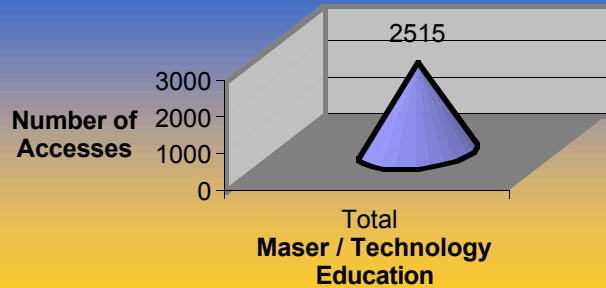
# International Use of VT ETDs



# WVU ETD Web Information Page Accesses



# WVU ETD Most Accessed



# Costs and Benefits

WVU

Virginia Tech



## Collection Maintenance

- WVU Academic Computing
  - Server and maintenance: (.3 fte; existing personnel utilized) Dell 20 GB hard drive, Windows NT OS, initial programming, archiving routine
- VT Digital Library and Archives
  - Server: Sun Enterprise 250, 384 Mb RAM, running Solaris 2.7, 9 Gb; Apache Web server



## Education

- WVU Workshops / Consultants:
  - 1.0 fte; rotates among 4 consultants existing personnel utilized
- ETD Document Preparation and Conversion
  - Many students need lack basic word processing and multimedia skills
- ETD Program Overview and Submission Process (University Libraries)
  - Many students complained initially, now accepted and exploring new formats
  - [Web Information Page Accesses](#)




## Virginia Tech Digital Library and Archives

- Supporting ETDs at a Typical University Library
  - <http://scholar.lib.vt.edu/theses/data/setup.html>
  - Staffing
    - Programmer, student, faculty liaison
  - Software (Tony's session tomorrow)
    - Free or home-grown and free to NDLTD



## WVU Libraries / Technical Services Division

- Submissions
  - 1.0 fte; existing personnel utilized): Technical Consultant and occasional backup (equivalent to submission & review by graduate school)
- Cataloging
  - 1.5 fte; existing personnel utilized:
    - Cataloging Librarian, Library Technical Assistant
  - Cost reductions for binding, handling, etc: \$6.00/ dissertation unit; Library formally subsidized \_ of cost; current savings of at least \$1,000 annually. Handling: no book processing required (labor intensive)



## ETD Cost Savings at Virginia Tech

- ◆ 3000 paper copies/year no longer stored and shipped from Graduate School to Library
- ◆ 166 ft. shelf space per year in Library
  - No binding, shelving, circulating, etc.
- ◆ No additional equipment or staff necessary
  - \$65,000US projected library start-up costs: staff, equipment, software



## Students

- WVU:
  - Master's Theses: \$55.00 submission fee (covers UMI submission and \$10 archiving fee); copyright fee of \$45.00 is optional; Doctoral Dissertation: \$65.00 submission fee (covers UMI submission and \$10 archiving fee); copyright fee of \$45.00 is optional



## Students

- Virginia Tech
  - Master's Theses: \$20 archiving fee is required; copyright fee of \$45.00 is optional;
  - Doctoral Dissertation: \$65.00 submission fee covers UMI submission; \$20 archiving fee is also required; copyright fee of \$45.00 is optional



## Libraries / Public Services Division WVU and VT

- Reference / Document Delivery:
  - Existing personnel utilized; minimal impact; required initial training, augmented use of electronic delivery & copy services



## Realities of Digital Publishing

- Student Publishing Concerns
  - Dissent from History Department students
- How have publishers reacted to articles from ETDs?
- University Tenure Systems and Digital Publishing
  - Is digital publishing being recognized for basis of granting tenure and promotion to university faculty?



## Positive Outcomes from Implementation

- WVU
  - Heightened sense of awareness on campus of the profound effects of information technology
  - Rapid Technology Transfer:
    - Transforming West Virginia's economy
    - Providing research access to the world
- Va Tech
  - Heightened sense of awareness on campus of the profound effects of information technology



## NDLTD's Role

- Provide Implementation Support
- Networking University Communities
- Federated Searching
- Consortium Research and Development: Commitment to the Future
- What should its role be in the future?



## Epilogue: the Continuing Dream

- ◆ *Excerpt from "Changing Landscape"*



## ETD Web Resources

- Virginia Tech
  - <http://scholar.lib.vt.edu/theses>
  - <http://etd.vt.edu>
  - <http://www.ndltd.org>
- West Virginia University
  - <http://www.wvu.edu/~thesis/>
  - <http://www.libraries.wvu.edu/theses/index.htm>
  - <http://www.libraries.wvu.edu/thesis.htm>



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