Implementing Electronic Reserves: The Care and Feeding of Virtual Resources and Users

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Director
Multimedia Services
Library Systems

PACIFIC LUTHERAN UNIVERSITY
Variety, color, confusion, error, and a grain of truth, that’s the right brew, it suits everyone.

-- Goethe, *Faust*
Presentation Pathway

- Critical Mass Synergisms
- Review of Literature
- Feasibility Studies
- Implementation
- Pilot Project
- User Surveys and Results
- Fine Tuning
- Missing Links & Next Steps
Critical Mass Synergisms

- Computers in User Rooms, Faculty Offices, and Library
- Network Infrastructure & ResNet
- Servers & Network Printers

- Enabled Information Resources Organization
- Web Applications Requiring Authentication
- Curricular Applications
Computers On Campus

Campus Computers

- Spring 1997
- Fall 1998
- Fall 1999

Library Public Workstations with Internet Access

- Fall 1996
- Fall 1997
- Fall 1998
- Fall 1999
The PLU Network and ResNet Community

- 10 megabit community
- > 2,400 nodes, 900 ResNet
- ~ 65% active
LDAP Patron Authentication

- Web course materials
- Intranet materials
- Threaded discussion groups
- Subscription databases
- Ereserves
  - to patron
  - not to course
Authentication Dilemmas

- Where Are You?
  - On Campus
  - Off Campus

- Who Are You?
  - Generic Password
  - Individual Password
  - Privileges
Driving Forces

- Need to expand temporal and spatial availability (network to populate)
- Reserve problems
  - “hoarding”
  - overdues
  - pages out of order or missing when copied
  - loss of copies
- Paper and copy machine costs
- Faculty Web Pilot Projects
Populate the Network: Increase Resources & Access

- Worldwide
- 24 x 7
Electronic Reserves?

General MacArthur

“The reserves are the backbone of any Army.”

George Soete

“Perhaps no recent development in library services so clearly epitomizes the triumph of technology over the barriers of time and space as electronic reserves.”
Of 122 ARL institutions surveyed, 61 (50%) responded.

Numbers of items on electronic reserves ranged from 0 to 60,000.

SPEC Flyer 245
Electronic Reserves Operations in ARL Libraries
May 1999
Review of Research

- Literature Search
- Discussion Groups
- Sample Ereserve Sites
- Online Northwest
- Summary Spreadsheets

Electronic Reserves Clearinghouse
Jeff Rosedale
Columbia University Libraries

FOR MORE INFO...
# Affecting Stakeholder Key Performance Indicators

<table>
<thead>
<tr>
<th>Rank</th>
<th>Indicator</th>
<th>Mean</th>
</tr>
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<tbody>
<tr>
<td></td>
<td><strong>Graduate Students</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Match hours open with user needs</td>
<td>4.513</td>
</tr>
<tr>
<td>3</td>
<td>Provision of multiple copies of items in high use</td>
<td>4.487</td>
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<tr>
<td></td>
<td><strong>Undergraduate Students</strong></td>
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<tr>
<td>1</td>
<td>Provision of multiple copies of items in high use</td>
<td>4.628</td>
</tr>
<tr>
<td>2</td>
<td>Match hours open with user needs</td>
<td>4.586</td>
</tr>
<tr>
<td></td>
<td><strong>Resource Allocators</strong></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Match hours open with user needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Senior Library Staff</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not in top 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Other Library Staff</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not in top 20</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Match hours open with user needs</td>
<td>4.259</td>
</tr>
<tr>
<td>20</td>
<td>Provision of multiple copies of items in high use</td>
<td>4.052</td>
</tr>
</tbody>
</table>

Top LITA Technology Trends (1999)

**TREND 1:** Library Web users expect customization, interactivity, and customer support.

**TREND 2:** Librarians can help the overloaded information user by selecting, evaluating, and adapting features.

**TREND 4:** Co-opt existing technologies that haven't been used in libraries, and take advantage of cooperative efforts in information access.

**TREND 5:** The isolated scholar is out there, and she wants your resources!

**TREND 6:** Authentication and rights management: who has the right to use this... how much will they be charged?

Source: http://www.lita.org/committee/toptech/trendsmw99.htm
Pioneering Institutions

- Colorado State University
- Duke University
- Marist College
- Northwestern University
- Rochester Institute of Technology
- San Diego State University
- Virginia Polytechnical Institute
- Washington Research Library Consortium
  - American, George Mason, George Washington University

List from:
George Soete (1996).
*Issues and Innovations in Electronic Reserves*
• Sample Documents & Policies

• Survey instruments, evaluation forms, office memoranda, and worksheets
  • Colorado State University
  • Marist College
  • Northwestern University
  • San Diego State University

• Ereserve Policy Summaries & Links

FOR MORE INFO...

• Lorre Smith (1999).
• University at Albany, State University of New York
• http://www.albany.edu/~ls973/policies.html

• List from: George Soete (1996).
• Issues and Innovations in Electronic Reserves
Common Themes and Threads of “Successful Sites”

- Good infrastructure and technical support
- Used higher-end workstations and printers
- Standardized on .pdf file format
- Used HTML rather than proprietary systems
- Followed digital copyright guidelines
- Integrated electronic reserves into curriculum
Ereserves Management Software

FOR MORE INFO...
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Most Popular File Types

- Scanning software
  - Adobe Acrobat suite
    - Capture
    - Distiller
    - Exchange
  - Adobe Photoshop
  - OmniPage

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May 1999
Feasibility Studies

- What would it take to implement ereserves at PLU?
  - Hardware
  - Peripherals
  - Software
  - Server
  - People
  - Training
  - Policies
Electronic Reserves System Components

- Floppy
- Scanner
- Email Attachments
- Ereserve Workstation (Staff Desk)
- Printer (Copier)
- Workstation & Web Browser (Reserve Desk)
- Web Server (Closed Stacks)
Asynchronous Access to Ereserves (PLU)

- **Reserve access hours increased by 40.8%**

Bar chart showing hours open and possible for each day of the week:

- Sunday: 11 hours open, 16.5 hours possible
- Monday: 16.5 hours open, 16.5 hours possible
- Tuesday: 16.5 hours open, 16.5 hours possible
- Wednesday: 16.5 hours open, 16.5 hours possible
- Thursday: 16.5 hours open, 16.5 hours possible
- Friday: 13.5 hours open, 16.5 hours possible
- Saturday: 9 hours open, 16.5 hours possible

Pie chart showing the percentage of open and closed hours:
- Open: 59.2%
- Closed: 40.8%
Place-Independent Access

- Increased Access
- Reduced Control
  - hardware
  - software
- Broader Support
- Find Common denominators

Reserve access now worldwide
# Reserve Collection Contents & “Potential Reserves” (PLU)

<table>
<thead>
<tr>
<th>Category</th>
<th>Copyr.</th>
<th>Non-Copyr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal articles (copies)</td>
<td>583</td>
<td>583</td>
</tr>
<tr>
<td>Journals (bound)</td>
<td>101</td>
<td>101</td>
</tr>
<tr>
<td>Journals (unbound P.C.)</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Book chapter/excerpts</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Books</td>
<td>994</td>
<td>-</td>
</tr>
<tr>
<td>Tests/problem sets</td>
<td>35</td>
<td>-</td>
</tr>
<tr>
<td>Misc.</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>Student/Faculty Papers</td>
<td>68</td>
<td>-</td>
</tr>
<tr>
<td>Newspapers/Bulletins (P.C.)</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Lists, pamphlets, handouts, maps</td>
<td>111</td>
<td>111</td>
</tr>
<tr>
<td>Software, hardware, calculators</td>
<td>46</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>2,210</td>
<td>1,007</td>
</tr>
<tr>
<td>Percent Total</td>
<td>45.6</td>
<td>20.8</td>
</tr>
</tbody>
</table>
Five Most Common Materials Placed on Electronic Reserve

- Course notes and sample tests: 94%
- Exercises/Problem Sets: 88%
- Journal Articles: 69%
- Book Chapters: 59%

Other Materials:
- links to web pages
- syllabi
- homework solutions
- student materials

FOR MORE INFO...
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May 1999
Reserve Share of Total Print Circulation (PLU)

Total 1995 Circulation = 21,111
Reserve Share of Total Print Circulation (PSAIL)

- NW College: 23.2%
- PLU: 24.7%
- Saint Martins: 34.8%
- SPU: 0%
- Seattle U: 14.8%
- UPS: 31.9%

From 1998 IPED Report
Alternatives to Ereserves

Added Value of Ereserves

- Publishers provide links to point to
- Faculty take over process via their home page
- Creation of digital archives

- Added Value of Ereserves
  - Scanning
  - Consistent user interface - "One-stop shopping"
  - Backup services & print
  - Proquest persistent links
  - Integration of multimedia resources
  - Data collection, statistics
  - Evaluation, selection, copyright assistance
  - Troubleshooting and support
What is Unknown...

Will it work?

When is it time to act?

What will it mean to me?
Vision Statement (excerpt)

- Library automation systems will provide bibliographic and in some cases digital access to information in a variety of formats including print, magnetic, film, optical, and digital forms. PLU students, faculty and staff will have convenient, 24 hour access to digital library resources and services via the campus network.
PLU Strategic Plan for Library Automation Systems
March, 1998

● Strategic Issues and Plans (Excerpts)

● Migrate to Graphic User Interface and Client/Server Architecture
  – Implement Z39.50 access to bibliographic database
  – Install WebPAC server for web-based access to QUEST
  – Develop Haley Information Center workstations for accessing, retrieving, and manipulating information resources
PLU Strategic Plan
for Library Automation Systems
March, 1998

- Improve Access to Local and Worldwide Services and Resources
  - Investigate and implement appropriate electronic document delivery and printing mechanisms
  - Implement electronic reserves to deliver full text reserve materials via the network
  - Make multimedia archival and media resources available via the network
But in our enthusiasm, we could not resist a radical overhaul of the system, in which all of its major weaknesses have been exposed, analyzed, and replaced with new weaknesses.
Bricolage

- “Puttering”
- Constructing new things from the materials at hand
- Craft something new out of existing resources
- Progress by substitution rather than addition
- Pilot Project

Adapted from Thomas C. Wilson (1998)
The Systems Librarian: Designing Roles, Defining Skills
Goals and Objectives of Pilot Project

- Provide worldwide, 7x24 access via web
- Provide alternative access point for frequently used materials
- Comply with “accepted” copyright standards
- Encourage faculty to integrate appropriate materials into curriculum
- Reduce turnaround, provide alternatives for lost or overdue materials
Implementation Timeline

**Milestone**

- Strategic Plan completion
- Hardware/software installation
- Site visits
- Scanner and software training
- Set up account
- Prototype web pages
- First Ereserve course
- Optimize pages
- User survey
- User documentation
- Faculty documentation

May  Jun  Jul  Aug  Sep  Oct  Nov  Dec  Jan
Project Management

- Acquiring Workstations & Peripherals
- Software Installation
- Site Visits
- Training
- Prototyping
- Optimizing
- Cheerleading
Expanding Scope of Ereserves

Really Part of Broader Issues of Electronic Access to Information

- User Rooms
- Library Workstations
- Printers
- User Help
- Accounts & Passwords
Meatspace Issues

the physical world
(as opposed to the virtual)

See also:

- facetime
- carbon community
- F2F
- RL
Change/ Transition Management

Transition Grid

Past
- Visit Sample Sites
- Begin Training
- Collect User Feedback
- Make Information Available

Future
- Add Resources?
- Collect User Feedback
- Provide Responsive System/Tech Support
- Develop Prototypes

Past
- Visit Sample Sites
- Begin Training
- Collect User Feedback
- Make Information Available

Future
- Add Resources?
- Collect User Feedback
- Provide Responsive System/Tech Support
- Develop Prototypes

Denial
- Resistance

Commitment
- Exploration

(Scott & Jafree)
There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new order of things.

Whenever his enemies have the ability to attack the innovator, they do so with the passion of partisans, while the others defend him sluggishly, so that the innovator and his party alike are vulnerable.

Niccolo Machiavelli

The Prince
I am always ready to learn, although I do not always like being taught.

Winston Churchill
Site Visits

- University of Washington
  - Health Sciences Libraries
  - Odegaard Undergraduate Library
Copyright Issues

- “Fair Use in the Electronic Age”
- Authentication
- Copyright Compliance Forms
- Display of Copyright on .pdf Files
- Semester Purging

ARL Study
Twenty-two libraries (55%) have ereserve copyright policy. Variation in whether library staff or faculty members have responsibility for obtaining copyright permission

FOR MORE INFO...
Distance Education Copyright Report
http://www.loc.gov/copyright/disted/
Hardware

Computer
- RAM
- Hard disk space
- Zip Drive
- CD-ROM Drive

Scanner
- SCSI board
- Driver

Server
- Disk space
- Ereserve account on server
- “Protected” directories
LDAP Patron Authentication

- Critical path issue
- Directory protection
- Password changes required
- Coordination with public services (computer support & reference)
Software and Training

- Scanning Driver
- Acrobat
- PhotoShop
- Acrobat Capture
- Adobe Classroom in a Book series
- HTML & Web Page Design
Faculty submission of ereserve material → Copyright compliance form signed? → Advise faculty

Electronic material printed for hardcopy checkout → Hardcopies placed in folders and assigned call #’s → Electronic files converted to .pdf

Material to be scanned? → Photocopies placed in folder with assigned call #’s

→ Photocopies scanned, captured and converted to .pdf files

→ .pdf files assigned same call #’s as hard copies

→ .pdf files stored in proper computer folder, e.g. BUSA, NURS, PSYC

→ Web pages created & FTPed

→ Routine processing of hard copies
Selection of Pilot Courses

- Best case
- Worst case
- Average case

- Niche Users:
  - distance
  - time
  - optional material
  - Tobago course
Scanning

Those who eat sausages or use databases [electronic reserves] would probably prefer not to see either being made.

Rikki Mangrum
Scanning

- Resolution
- Scanning Time
- File Size
- Adjustments
- Capture Suspects
- Testing Samples

Parkinson’s New Law

The printed word expands to fill the space available for it.
Anatomy of an Ereserve Course Page

- Course Name
- Prof Email
- Article
- File Type
- File Size
- Course Links
Ereserve Course Data

Number of Pages by Course
Fall 1998
Total Number of Pages = 1,245
Pages/Course Range 6 - 659

Number of Items by Course
Spring 1999
Total Number of Items = 112
Items/Course Range 1 - 20
Server Disk Space (mb) by Department

Total Disk Space Fall 1998 = 120.6 MB

Total Disk Space Spring 1999 = 23.53 MB
Problems

- Incredible faculty enthusiasm
- Acrobat reader config.
- Acrobat capture & PDFWriter on NT
- LDAP passwords
- Printing

- File size and download speed
- Server hard disk space
User Satisfaction Survey Results
Overall User Satisfaction (n=79)

- **Fall 1998**
  - Very Satisfactory: 27
  - Satisfactory: 30
  - Somewhat Satisfactory: 18
  - Unsatisfactory: 4

- **Spring 1999**
  - Extremely Satisfactory: 38
  - Quite Satisfactory: 53
  - Satisfactory: 15
  - Somewhat Satisfactory: 3
  - Unsatisfactory: 0

n=79
Student Comments

No problems. This is GREAT! As an off-campus commuter student, this is the most exposure I’ve had to this library. It was very convenient and useful.

Terrific capability… Keep it.

I wouldn’t want to ever have to do this crap again!
Faculty Comments

Bridget Yaden
Instructor
Languages & Literature

Merlin Simpson
Assistant Professor
Business Administration
Use of Ereserves
Spring 1999 (n=~110)
Sources of User Problems (PLU)

- Downloading files: 24
- Printing: 21
- Downloading Acrobat: 19
- Password: 18
- Navigating Acrobat: 6
- Saving to disk: 5
- Other: 5

Fall 1998 n=79

- Downloading files: 13
- Printing: 15
- Downloading Acrobat: 10
- Password: 8
- Navigating Acrobat: 7
- Saving to disk: 6
- Other: 3

Spring 1999 n=109

22.8% for Fall 1998
7.4% for Spring 1999
Speed Issues

- Download times
- Printing
- Difficult problem solving & symptom analysis
- Slow network
- Fielding support and complaints
Planning for “Crossing the Chasm” with Faculty & Users

Innovators
Early Adopters
Early Majority
Late Majority
Laggards

Learning Styles
- Self-Motivated
- Individual
Sample Strategies
- Pilot Projects
- Technical help

Learning Styles
- Peer-centered
- Group workshops
- Peer encouragement
Sample Strategies
- Peer experts in departments
- Showcase faculty projects
- Endorsement/workshops by pedagogical experts

FOR MORE INFO...
Moore (1991)
Crossing the Chasm:
Marketing and Selling High-Tech Products to Mainstream Customers
Where We Are Now

Adaptation of Nolan’s “Stages of Growth Curve”
“Fine Tuning” & Enhancements

- File size optimization
- Promoting with faculty
- Help for installing acrobat
- Printer drivers for .ps
- Site Builder persistent links
- Tighter interaction and cross-links with reference and bib instruction
- Other file types and help
- Avoiding paying twice
- Adding multimedia content

Science is what you do after you guess well.

Leonhard Euler
Scanning (DPI) vs. File Size (kB)

File Size (kB)

Resolution (DPI)

Legend:

- Legibility/printability threshold
Scan, Capture, Edit File Sizes (KB)

- Acrobat Scan
  - 200 DPI: 29
  - 300 DPI: 25
  - 350 DPI: 57

- After Capture
  - 200 DPI: 29
  - 300 DPI: 12
  - 350 DPI: Too many

- PhotoShop TIFF
  - 200 DPI: 25
  - 300 DPI: 16
  - 350 DPI: Too many

- After Capture
  - 200 DPI: 29
  - 300 DPI: 24
  - 350 DPI: 62
The role of electronic reserves in serving and shaping new teaching and learning environments in UK universities

*Journal of Information Science*, Amsterdam; 1999; *Dugdale, Christine*

Volume: 25
Issue: 3
UMI Publication No.: 01832796
Start Page: 183-192
Page Count: 10
Source Type: PERIODICAL
ISSN: 13527460
Subject Terms: Colleges & universities, Libraries, Electronic documents
Course Resources Links on Library Web Pages
Ereserve Language Tapes

Unidad 4: El bienestar

Lección 10: ¿Cómo te sientes?


L1002: Actividad C, Paso 2, p. 3. ¿Qué debería hacer esta persona?

L1003: Actividad E, p. 5. Para escuchar.


L1005: Actividad C, pp. 7-8. ¿Qué le pasa al piloto?
Resource Issues

- People
  - Workload, tasks, student help
- Workstations
  - More...
- Server
  - Disk space
- Network
  - Off-campus & ISP support
- Printing
  - Costs & printers
ARL Ereserves Staffing

- 18% reported start-up costs for staff
  - Average: $11,423
  - 11% added staff, averaging .88 FTE each
- On average, libraries have:
  - 1 professional librarian (spending 22% of time)
  - 2 support staff (spending 34% of time)
  - 5 student assistants (spending 57% of time)
- 75% of libraries have some staff devoted to "traditional" reserves also working on ereserves

FOR MORE INFO...
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Harvard Business Review Negotiations

- User Authentication
- Copyright Agreement for Each User
- Reports of Access
  - User name
  - Date & time of access
  - File accessed
- Per Use Charge with Bonus
  - Accounting
  - Intellectual property protection
Missing Links and Next Steps

- Printing charges
- Persistent links with other content providers
- Automated system integration
  - authority controlled searching by course & instructor
  - links from BIB and HOLDINGS level
- Integration with other resources and resource lists
The fact that TV Guide has been known to make larger profits than all four networks combined suggests that the value of information about information can be greater than the value of the information itself.

Nicholas Negroponte
*Being Digital*, 1995
Interactions with Library Automated Systems

- WebPac display of Ereserves: dead end to full text
- MARC record links to URL via 856 tag
- Must mirror data maintenance in Dynix and on web pages
- No integrated solution to reserve searching and retrieval
What If
Automated Systems Could...

- exploit power of authority control and database management on the web?
- provide HTML access to reserves via HTMLPac?
- hot link BIB and HOLDINGS records to URL in HTML Pac & WebPac?
Acknowledgements

- MaryAnn Dase, PLU
- Emily Hull, UW Health Sciences Library
- Sheri Tonn, PLU
- Pat Auyong and Sharon Chase, PLU
- Keith Folsom and Gene Gatlin, PLU
- Northwestern University Ereserve Site
For More Information …

- Electronic Reserves Clearinghouse
  http://www.columbia.edu/~rosedale
- Distance Education Copyright Report
  http://www.loc.gov/copyright/disted/
- Visit our sample site:
  http://www.plu.edu/~ereserve/codi
- LISTSERV group
  arl-ereserve@arl.org
I fully realize that I have not succeeded in answering all of your questions...

Indeed, I feel that I have not answered any of them completely. The answers I have found only serve to raise a whole new set of questions, which only lead to more problems, some of which we weren’t even aware were problems.

To sum it all up...

In some ways I feel we are as confused as ever, but at a higher level, and about more important things.

Source: Humor List