



DIGITAL LIBRARIES
Curriculum Development

Collaborative Research:

Curriculum Development for
Digital Library Education

<http://curric.dlib.vt.edu/DLcurric.html>

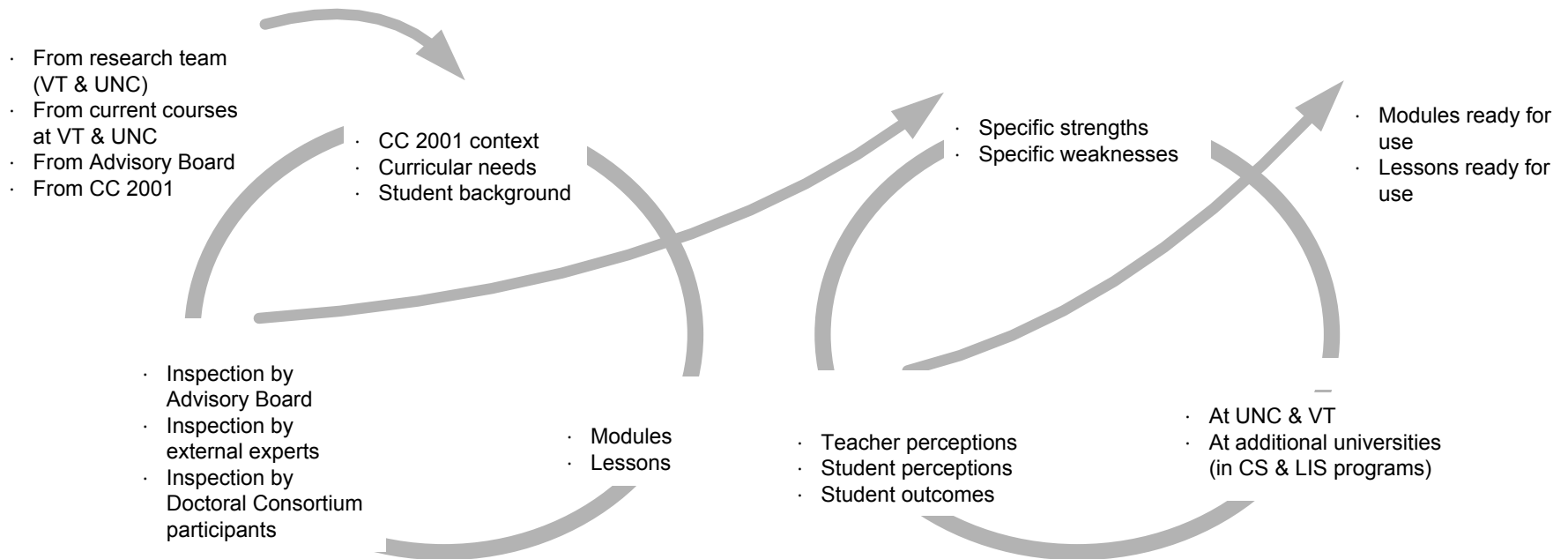
Presentation in May 1,2006

Project Teams/NSF Grant

- Project Team at VT (IIS-0535057):
 - Dr. [Edward A. Fox](mailto:fox@vt.edu) (fox@vt.edu)
 - [Seungwon Yang](mailto:seungwon@vt.edu) (seungwon@vt.edu)
- Project Team at UNC-CH(IIS-0535060):
 - Dr. [Barbara Wildemuth](mailto:wildem@ils.unc.edu) (wildem@ils.unc.edu)
 - Dr. [Jeffrey P. Pomerantz](mailto:pomerantz@unc.edu) (pomerantz@unc.edu)
 - [Sanghee Oh](mailto:shoh@email.unc.edu) (shoh@email.unc.edu)

Development / Evaluation Process

January 2006 – December 2008



Project Timeline

Table 6. Project Timeline

Activities	2006			2007			2008		
	Sp	Su	Fa	Sp	Su	Fa	Sp	Su	Fa
Creation of an advisory board	■								
Engagement of experts to assist with module development	■			■					
Development of modules		■	■	■	■	■			
Development of lessons within modules		■	■	■	■	■			
Development of 1- and 2-semester courses		■	■	■	■	■			
Preliminary evaluation of modules and lessons by experts			■	■		■	■		
Revision of modules and lessons				■	■		■	■	
Implementation of modules and lessons in existing courses						■	■		■
Evaluation of modules and lessons in the field							■	■	■
Offering of new courses at UNC & VT							■		■
JCDL conference and Doctoral Consortium		■			■			■	
ECDL & SIGIR conferences		■	■		■	■		■	■
ASIS&T conference			■			■			■
ICADL conference			■			■			■

Experts

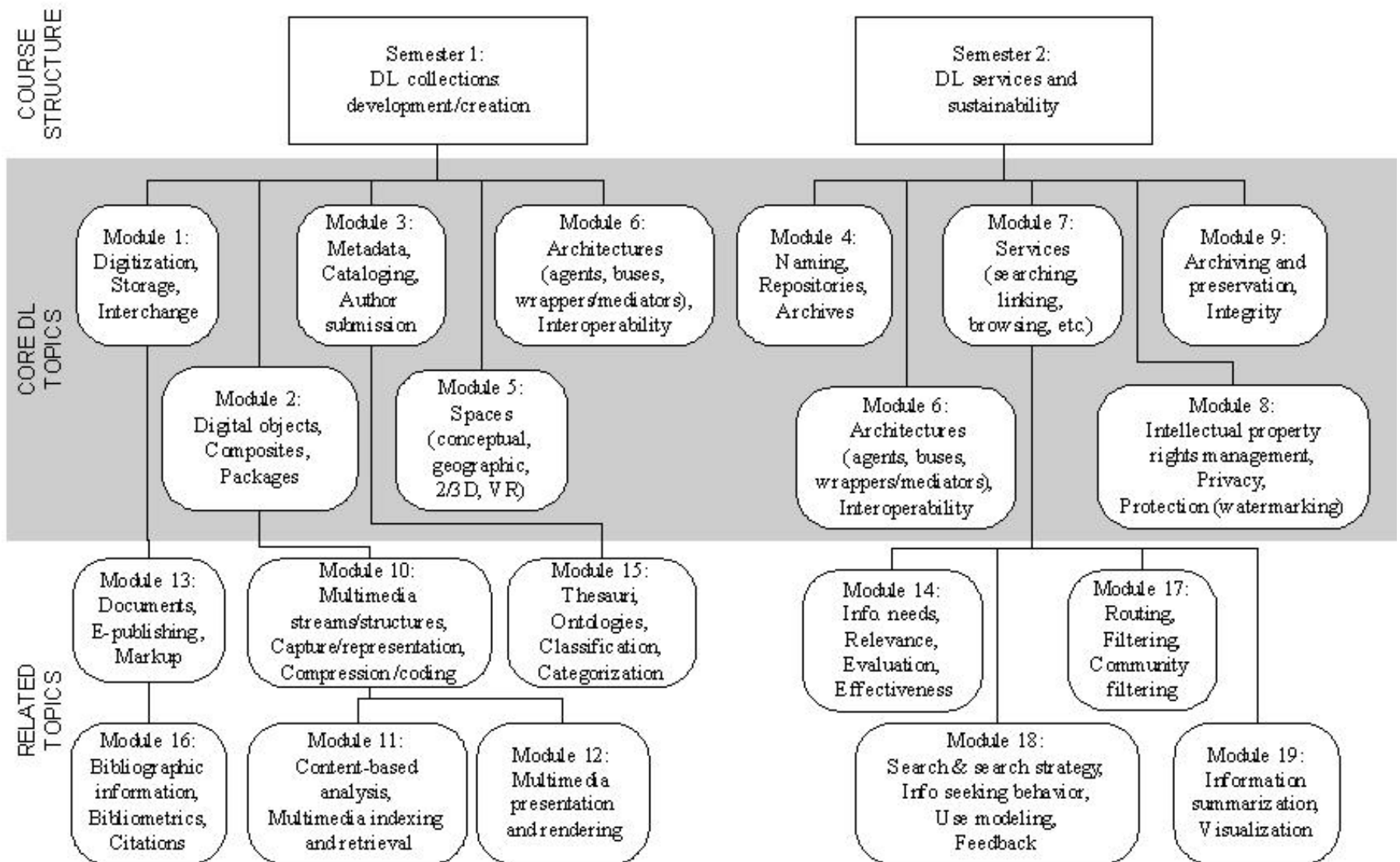
Table 3. Experts (all have agree to assist)

Advisory Board	VT	UNC
<p>Dan Atkins, U. Michigan Christine Borgman, UCLA Lillian Cassel, Villanova Michael Christel, CMU Raya Fidel, U. Washington Richard Furuta, Texas A&M University Elizabeth Liddy, Syracuse University Clifford Lynch, CNI Kurt Maly, ODU Javed Mostafa, Indiana Tefko Saracevic, Rutgers Linda Smith, UIUC</p>	<p>Steven Edwards, CS Roger Ehrich, CS Weiguo Fan, ACIS Steve Harrison, CS Gail McMillan, Library Chris North, CS Manuel Pérez-Quiñónez, CS Naren Ramakrishnan, CS Deborah Tatar, CS Layne Watson, CS</p>	<p>Catherine Blake, SILS Laura Gasaway, Law School Jane Greenberg, SILS Stephanie Haas, SILS Brad Hemminger, SILS Thomas James, Dean, School of Education Paul Jones, Director, ibiblio; SILS & School of Journalism & Mass Communication Diane Kelly, SILS Gary Marchionini, SILS Montek Singh, CS Natasha Smith, Library Helen Tibbo, SILS Steve Weiss, CS</p>

What we do:

- Identify, develop and test educational modules, guided by
 - . 5S framework
 - (Ex) Module revision in 3/27/06
 - . Analysis of DL course syllabi
 - (Ex) UNC-CH is collecting DL syllabi
 - VT collected syllabi from DELOS member institutions in Europe
 - . Experts
 - . Computing Curriculum 2001

DL Topics in 19 Modules



5S Framework

5S captures the entities and medium involved in digital libraries.

- “Societies”
 - Both software “service managers” and fairly generic “actors” who could be (collaborating) human (users).
- “Scenarios”
 - System states and events, but also can represent situations of use by human users (or machine processes, yielding services or transformations of data).

5S Framework

- “Spaces”
 - 2D and 3D interfaces, GIS data, representations of documents and queries.
- “Streams”
 - All types of content (as well as communications and flows over networks, or into sensors, or sense perceptions)
- “Structures”
 - Organizational schemes (including data structures, databases, and knowledge representations)

5S Examples

Table 7. The 5 Ss		
Ss	Examples	Formalization
Streams	Text; video; audio; image	Sequence (list)
Structures	Collection; catalog; hypertext; document; metadata	Graph, Function, Relation
Spaces	Used in indexing, browsing, and searching services – as well as interfaces	Set (vector, topological, measurable, measure, probability spaces)
Scenarios	Searching, browsing, recommending	States, events, sequences (lists)
Societies	Service managers (software), Actors (learners, teachers, etc.)	Tuple (relating events and actions)

Module Revision 3/27/06

STREAM

1. Collection Development

- Digitization
- Document and E-publishing Markup
- Harvesting

2. Digital objects/Composites/Packages

- Text Resources
- Multimedia streams/structures, Captures/representation, Compression/coding
 - Content-based analysis, Multimedia indexing
 - Multimedia presentation rendering

STRUCTURE

3. Metadata, Cataloging, Author submission

- Thesauri, Ontologies, Classification, Categorization
- Bibliographic information, Bibliometrics, Citations

4. Architecture (agents, buses, wrappers/mediators), Interoperability

Module Revision 3/27/06

SPACE

5. Spaces (conceptual, geographic, 2/3D, VR)

- Storage
- Repositories, Archives

SENARIOS

6. Services (searching, linking, browsing, etc.)

- Info needs, Relevance, Evaluation, Effectiveness
- Search & search strategy, Info seeking behavior, User modeling, Feedback
- Routing, Filtering, Community filtering
- Sharing, Networking, Interchange
- Info summarization, Visualization

SOCIETIES

7. Intellectual property rights management, Privacy, Protection (watermarking) (ILS)

8. Social issues / Future DLs

????

9. Archiving and preservation integrity (ILS)

What we do:

- Each module will include
 - Lesson plans
 - Concept maps
 - Recommended reading list
 - Demos / online resources
 - Exercises and quizzes

And they will be developed during this summer...

What we do:

- Course Development (summer 2006)
 - 1-semester and 2-semester courses will be based on the developed modules
- Courses and modules will be...
 - Evaluated by experts
 - Pilot-tested in CS and LIS courses by the U.S. institutions and our international collaborators in India (Dr.Chakraborty) and Brazil (Dr.Torres).

Dissemination Efforts

Conference	Type	Status
JCDL 06	Curriculum Development for Digital Libraries (paper)	Accepted
ETD Symposium 06	Digital Library Curriculum Development: Enhancing Education and Comprehension of NDLTD (paper)	Accepted
ECDL 06	Collaborative Research: Community-Oriented Curriculum Development for Digital Library Education (poster)	Submitted

JCDL '06 Paper

- We've manually classified and analyzed:
 - Conference Proceedings
 - JCDL '01 - '05 : 354
 - ACM DL'96 - '00 : 189
 - Magazine articles
 - D-Lib magazine '95 – '06: 521
 - Conference session titles : 264
- Total 1,064 papers and 264 session titles were classified against revised modules.
- Most popular topics were architecture, services, and social issues

ECDL '06 Poster

- DL-related course syllabi were collected from
 - DELOS member institutions in Austria, Czech Republic, United Kingdom, Switzerland, Norway, and Germany
- English resources (reference papers, textbooks, online demo, etc) were then retrieved from the syllabi and organized as papers, textbooks, and online documents and tutorials.

Links to Resources

Excel files and DL educational resources taxonomy.

- Corpus Table Download Link

<http://curric.dlib.vt.edu/DLcurric/syllabiCollection/European/v1/EuropeanDLCourseCorpusTable-v1.xls>

- Textbook Analysis Table Download Link

<http://curric.dlib.vt.edu/DLcurric/syllabiCollection/European/v1/EuropeanDLCourseBookAnalysisTable-v1.xls>

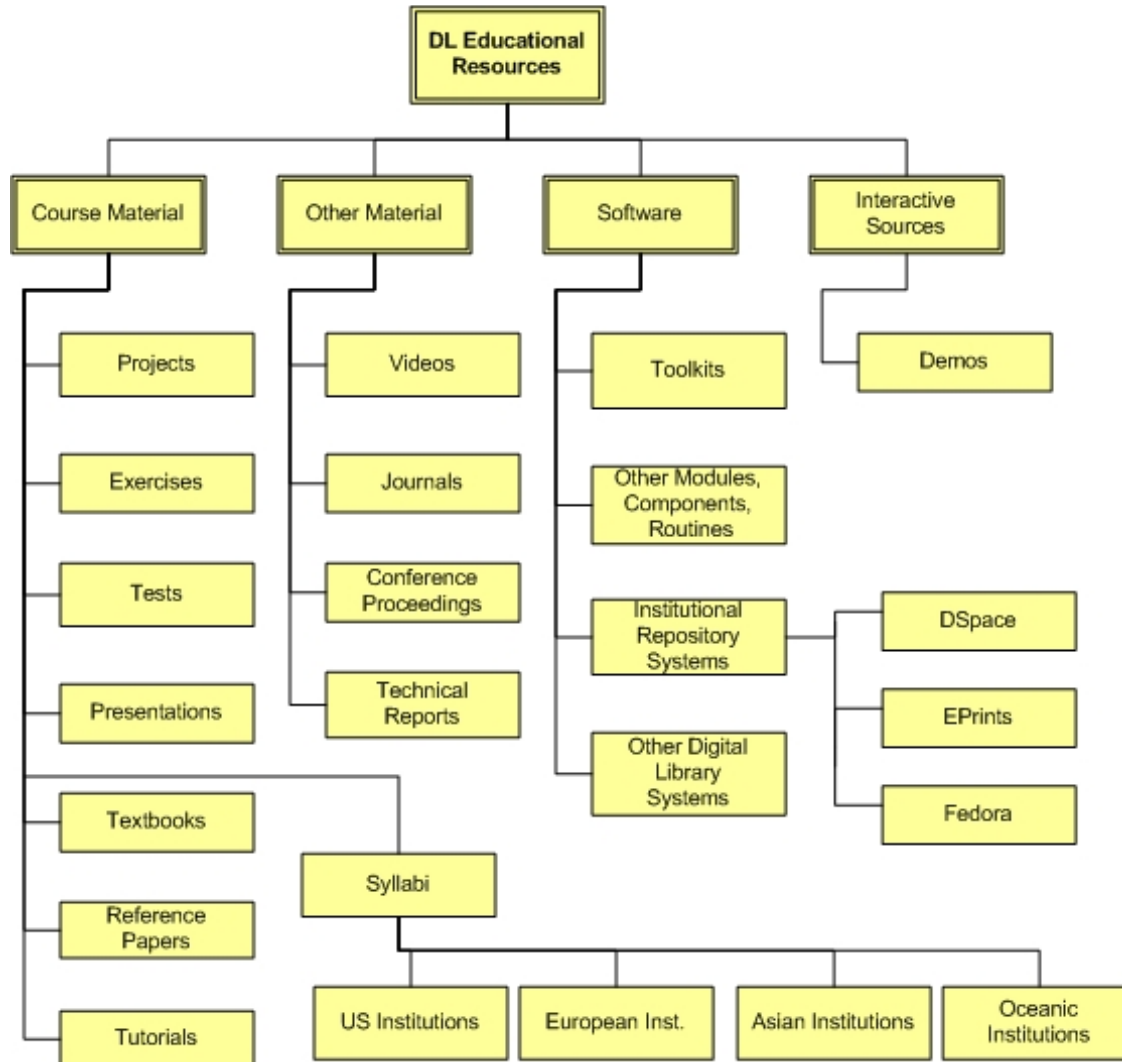
- Reference Paper Analysis Table Download Link

<http://curric.dlib.vt.edu/DLcurric/syllabiCollection/European/v1/EuropeanDLCoursePaperAnalysisTable-v1.xls>

- Online Documents and Tutorials Analysis Table Download Link

<http://curric.dlib.vt.edu/DLcurric/syllabiCollection/European/v1/EuropeanDLCourseOnlineDocTutorialsAnalysisTable-v1.xls>

Taxonomy of DL Educational Resources



Questions?

News and Interviews

- WVTF Public Radio: Morning Edition,
"Interview with Dr.Fox" [January 30, 2006]
- VT Collegiate Times article [January 26, 2006]
- UNC Gazette article [January 25, 2006]
- Virginia Tech Computer Science Department News
article [January 23, 2006]
- Virginia Tech News article [January 20, 2006]