



## Health Education Assets Library

*A Digital Multimedia Library for Health Sciences Education*

*CIT Summer Forum, UCSF, July 16, 2003*

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## Overview

- Introduction and Background
- HEAL Vision and Goals
- The HEAL Application
- The HEAL Metadata Schema
- The HEAL Federation
- Summary



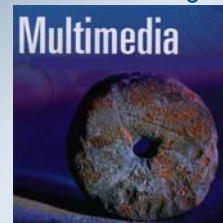
## Background

- Increasingly, faculty use digital multimedia for teaching:
  - Images
  - Videos
  - Audio files
  - Animations
  - Simulations
- Increased use of online course management systems
- Internet makes searching, delivering of materials easier than ever



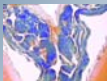
## Irony

Despite the Internet, an extraordinary amount of effort and resources are expended on reinventing the wheel



## Common Reinvented Wheels:

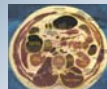
histology



radiology



anatomy



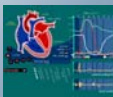
videos



pathology



animations

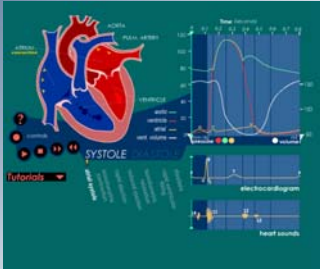


## Why sharing?

- Reduces costs
- Saves time
- Improves quality
- Makes educational sense

## Sharing multimedia makes educational sense

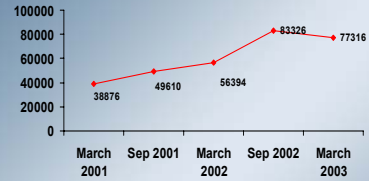
Heal



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## Faculty reinvent their own wheels

Heal



- Who owns these images?
- Where are they used in the curriculum?
- What do they depict?

## Needs

Heal

- Digital multimedia for teaching and learning
- Single "portal" for finding teaching materials and judging their quality
- Infrastructure for multimedia exchange
- Tools for organizing and management of multimedia locally
- Mechanism that facilitates repurposing of materials

## Health Education Assets Library

Heal



www.healcentral.org

- Funded in Oct 2000 by NSF
- Refunded in Oct 2002 by NSF and by NLM (May 2003)
- Part of NSF's National Science Digital Library program
- Co-directors
  - Sharon Dennis (U Utah)
  - Chris Candler (U Oklahoma)
  - Sebastian Uijtdehaage (UCLA)

## HEAL Team

Heal



UCLA, University of Oklahoma, University of Utah

## HEAL Vision and Goals

Heal

## HEAL Vision

The vision of HEAL is to become a premier, national resource for all levels of health sciences educators by providing free and easy access to a large number of high-quality health educational materials.

## HEAL Goals

- Facilitate **access** to free, high-quality multimedia resources
- Promote **sharing** of resources
- Foster **interoperability** of resources
- Build a **sustainable** infrastructure

### Goal 1

Improving access to free resources

## Access to free resources

- Building a collection
  - Health science education
  - Patient and consumer education
- Multimedia: Images, videos, animations, applets, etc.
- Currently prototype collections (3000 items)
- By 2004 collection of 50,000+ items



## Collection scope

"Typical" undergraduate med ed curriculum.  
Initially, basic sciences:

- |                     |                |
|---------------------|----------------|
| ▪ Gross Anatomy     | ▪ Genetics     |
| ▪ Histology         | ▪ Pathology    |
| ▪ Physiology        | ▪ Microbiology |
| ▪ Biochemistry      | ▪ Epidemiology |
| ▪ Neuroscience      | ▪ Pharmacology |
| ▪ Molecular Biology |                |

Also: consumer, patient education materials  
Later: clinical health sciences (cases)

## Building the HEAL Collection

- Through partnerships with other collections
- Over 60 institutions and individuals have expressed interest in partnering
- Core set of partners for next 2 years to increase HEAL collection

## Sample Partner Collections



Partners include:

- PEIR (U. Alabama pathology collection)
- McGill University (entire multimedia collections)
- NLM: Medline Plus patient education materials, Ethermed
- MERLOT Health Sciences
- National Science Digital Library (NSF)
- Many more in a variety of disciplines



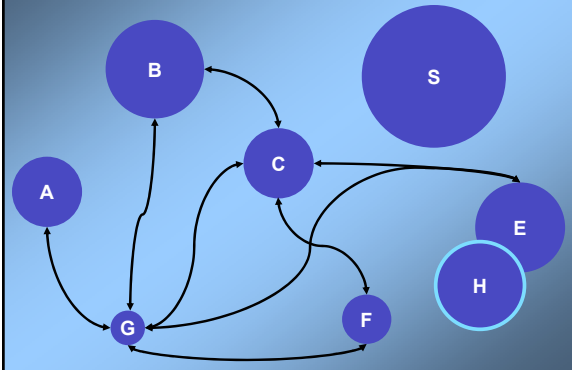
## HEAL application demo



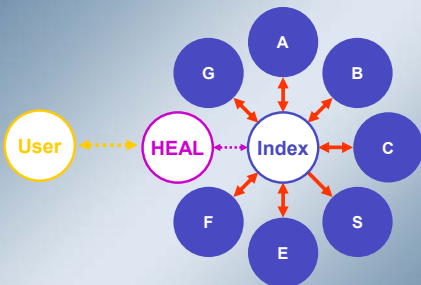
## Goal 2

Promote sharing of resources:  
the HEAL Federation

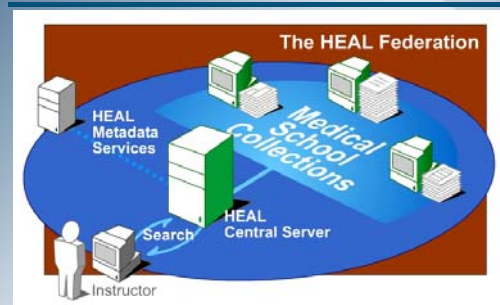
## Current Sharing:



## HEAL's Vision of Sharing

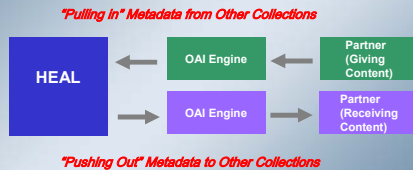


## The HEAL Federation



## Sharing Collections

- Accomplished through metadata harvesting using the Open Archives Initiative (OAI) protocol



## Open Archives Initiative (OAI)

- HEAL will “harvest” metadata from partner collections
- HEAL will expose its metadata to others
  - Tufts University
  - McGill University
  - National Science Digital Library (NSDL)
  - Scholar’s Portal

## Goal 3

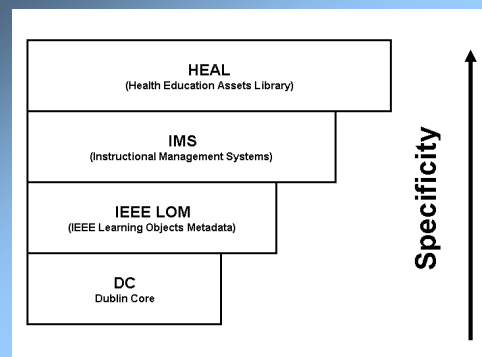
Foster interoperability of resources: the HEAL metadata schema

## Metadata schemas

- Sharing of multimedia is greatly facilitated by a standard cataloging (“metadata”) schema
- Metadata schema requirements:
  - compatible with international standards
  - compatible with course management systems
  - suitable for medical education

## Existing Metadata Schemas

- Dublin Core
  - Lowest common denominator
  - 15 elements, all optional
  - Designed to index Web resources
- IEEE/LOM and Educause IMS
  - Built on Dublin Core to describe learning objects
- HEAL extends IMS
  - IMS not sufficient for describing health sciences multimedia

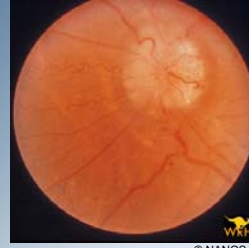


## HEAL Metadata Specification



- Provides elements to describe basic medical multimedia
- Balance between usability and sufficiency
  - 26 content elements
  - 8 required elements
- Broad support important → RFC
- Version 1 released Summer 2002
- Adopted by other *Ilios*, UCSF's course management system
- Future "extension" sets will describe more sophisticated items (e.g. cases, lectures)

## Sample



© NANOS

**Collection:** EHSL - William F.Hoyt Neuro-Ophthalmology Collection  
**Identifier:** P\_47a.jpg  
**Title:** Chronic papilledema with pseudo drusen  
**Creator:** William F. Hoyt, M.D.  
**Subject:** Papilledema Complications  
**Description:** Meningioma. Pseudo drusen from chronic papilledema.  
**Publisher:** Spencer S. Eccles Health Sciences Library, University of Utah  
**Contributors:**  
**Date.Original:** 1960  
**Date.Digital:** 2002  
**Resource Type:** Image  
**Format.Use:** JPEG  
**Format.Creation:**  
**Source:** William F. Hoyt, M.D.  
**Language:** en  
**Relation:** Right eye - pair with P\_47b  
**Coverage:**  
**Rights Management:** North American Neuro-Ophthalmology Association (NANOS), Copyright 2002. For further information regarding the rights to this collection, please visit <http://medlib.med.utah.edu/Hoyt/copyright.htm>  
**Holding.Institution:** Spencer S. Eccles Health Sciences Library, University of Utah

## Using HEAL's Metadata Schema



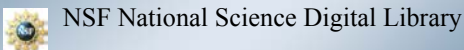
- See documentation on Web site
- You can extend the schema to meet your own needs



## Goal 4

Creating a Sustainable Infrastructure: HEAL Partnerships

## HEAL partners



## Sustainability Plans



- Building the collection
  - Clear intellectual properties and patient confidentiality policies
  - Develop rigorous QA mechanism
  - Studying obstacles to collection development
  - Developing incentives for contributors
- What happens when the funding ends?
  - Securing long-term funding and support
  - Building alliances with AAMC and NLM
  - Open Source release of source code

## Current developments

## Current Developments (1)

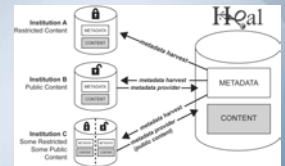
- 2002 – 2004
  - National needs assessment survey
  - Collection development, increasing both breadth and depth
  - Working with partners to add collections
  - Peer review process
  - Usability studies
  - Separate portals for consumers and professionals

## Current Developments (2)

- New NLM grant 2003-2006
  - Develop a more sophisticated searching system
    - Advanced searching algorithms
    - UMLS (Unified Medical Language System) for controlled vocabulary
    - Concept mapping
  - Create training materials

## Current Developments (3)

- Pending NLM Grant
  - UCLA UCSF
  - Local multimedia management system
  - HEAL "clone", based on HEAL application
  - Seamless integration with HEAL



## Summary

### HEAL:

- is a national repository to facilitate sharing.
- is a federation of collections.
- works with others to define standards.
- is an open, collaborative effort.

## Thank you!

- Heal Web Site:
  - <http://www.healcentral.org/>
- HEAL national survey:
  - <http://apps.medsch.ucla.edu/misc/HEALSURVEY/>
- HEAL E mail address:
  - [info@healcentral.org](mailto:info@healcentral.org)
- E mail Sebastian Uijtdehaage:
  - [bas@ucla.edu](mailto:bas@ucla.edu)