



ADVISORY COMMITTEE ON STUDENT FINANCIAL ASSISTANCE

Congressional Study

To Make College Textbooks More Affordable

Creating 21st Century Community College Courses: Building Free Public Domain Textbooks for Students

**Mr. Hal Plotkin, Writer & Journalist
President, Governing Board of Trustees
Foothill-De Anza Community College District**

**Dr. Martha Kanter, Chancellor
Foothill-De Anza Community College District**



FOOTHILL-DE ANZA
Community College District

ADVISORY COMMITTEE ON STUDENT FINANCIAL ASSISTANCE

- Why did you create an open source/public domain policy?
- What is the goal of your policy?
How will it help make textbooks more affordable for students?
- How do you hope to accomplish this goal?
- What are the main barriers or challenges?
- How are students and faculty responding to your efforts?
- Who else are you working with to help spread this model?





OPEN EDUCATIONAL RESOURCES

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- The Open Educational Resources movement creates free, high-quality, college-level public domain learning materials.
- This testimony addresses the recent policy enacted by the Foothill-De Anza Board that ensures administrative and faculty support for the organization, creation and use of materials to reduce education costs and the reliance on commercial textbooks.



ABOUT FOOTHILL-DE ANZA

■ **Foothill-De Anza Community College District**

- Foothill College, Los Altos Hills, CA

19,000 Students

- De Anza College, Cupertino, CA

25,000 Students

- Five Member Elected Governing Board

- Palo Alto, Mountain View, Cupertino, Sunnyvale, Los Altos, Los Altos Hills and parts of San Jose and Saratoga



FOOTHILL-DE ANZA'S PUBLIC DOMAIN BOARD POLICY

Foothill-De Anza Community College District Board of Trustees Policy on Public Domain Learning Materials

Enacted December 2005

- The Foothill-De Anza Community College District encourages the creation, use, and ongoing maintenance of public domain-based learning materials in accordance with established curriculum standards for educational purposes of the district.

- The goals of this policy are to provide students with high quality learning materials that reside in the public domain to augment and/or replace costly textbooks, to create sustainable academic resources for students, faculty and staff, and to provide opportunities for professional growth of district employees involved in these activities.

- The Chancellor will provide periodic reports, not less than annually, to the Board that detail the progress made toward accomplishing the goals delineated by this policy.



PUBLIC DOMAIN LEARNING MATERIALS

FOOTHILL-DE ANZA
Community College District

- Digitized materials (text, images, audio files, streaming video, etc.)
- Focused on teaching, learning and research (courseware, full courses, modules, collections, journals, books, data, etc.)
- Tools for creating, using and re-using content - Freely available on the web
- [Creative Commons](#)



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MIT OPENCOURSEWARE (OCW)

- 1,550 courses to date
- 1,800 courses by 2007
- 33 disciplines

MIT OCW reports:

- 100 institutions worldwide are openly publishing courses
- Over 2,000 courses are now openly published globally, one third from institutions other than MIT

COURSE LIST | ABOUT OCW | HELP | FEEDBACK

MITOPENCOURSEWARE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Welcome to MIT OpenCourseWare a free, open publication of MIT Course Materials. We invite you to [view all the courses](#) available at this time.

Welcome to MIT's OpenCourseWare:

a free and open educational resource for faculty, students, and self-learners around the world. OCW supports MIT's mission to advance knowledge and education, and serve the world in the 21st century. It is true to MIT's values of excellence, innovation, and leadership.

MIT OCW:

- Is a publication of MIT course materials
- Does not require any registration
- Is not a degree-granting or certificate-granting activity
- Does not provide access to MIT faculty

Learn more [about MIT OCW...](#)

"This is an outstanding and incomparable stance of MIT to give access of invaluable learning quality to the world. I would like to express my gratitude." -Triatno Yudo Harjoko, educator from Depok, Indonesia.

Search

» [Advanced Search](#)

AVAILABLE COURSES
Find individual course listings on the following MIT OCW Department pages, or [view a complete course list](#).

- ▶ [Aeronautics and Astronautics](#)
- ▶ [Anthropology](#)
- ▶ [Architecture](#)
- ▶ [Biological Engineering Division](#)
- ▶ [Biology](#)



FOOTHILL-DE ANZA
Community College District

FULL COURSES OFFERED

31 Courses Now Available

- 14 AP high school courses
- Algebra 1A & 1B
- College Prep Physics I & II
- 13 College Courses

MI
MONTEREY INSTITUTE
FOR TECHNOLOGY AND EDUCATION

NROC
NATIONAL REPOSITORY
of ONLINE COURSES

HOME
ABOUT
NROC
OCEP
CONTACT

COURSES

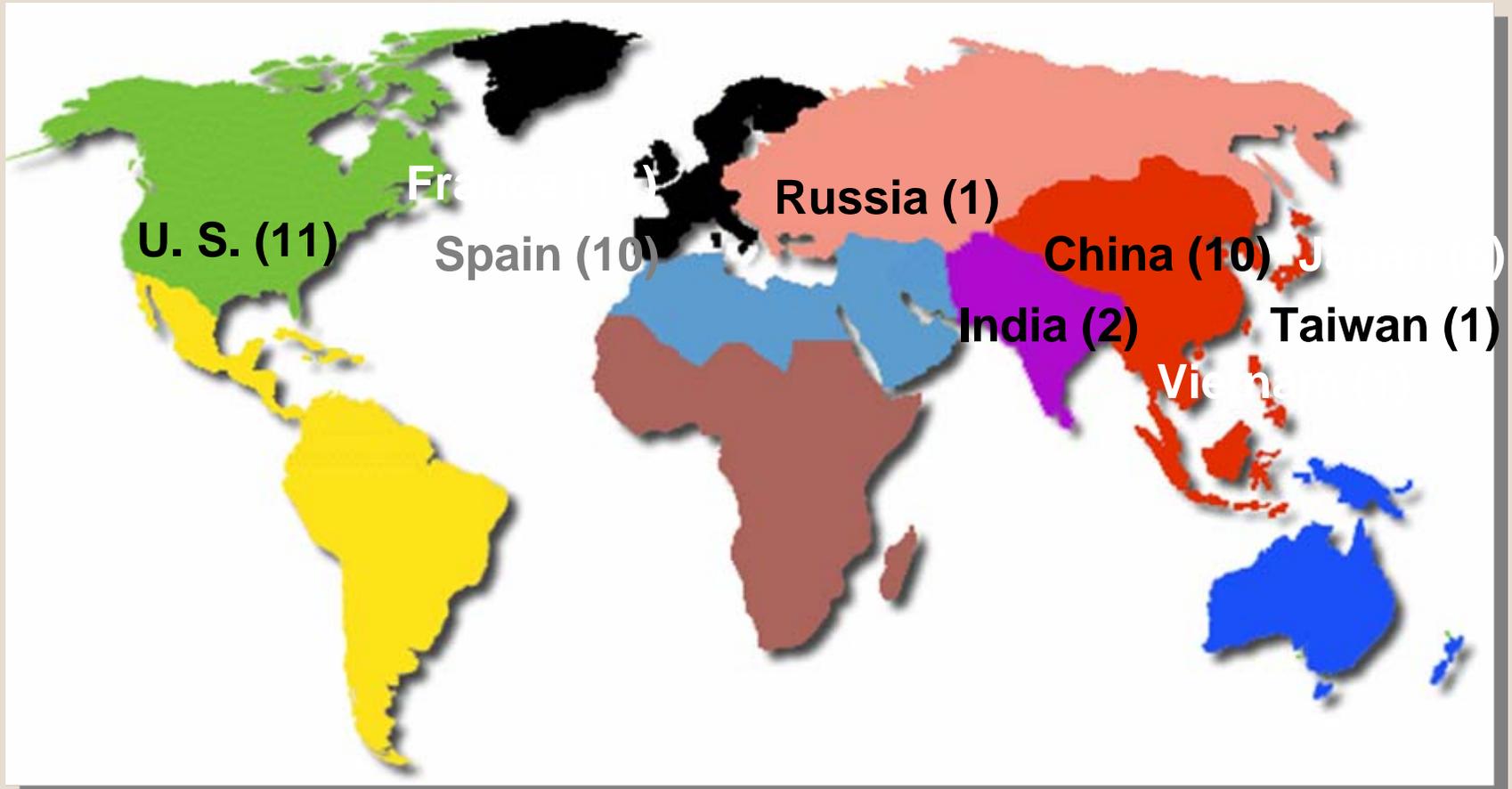
- ▼ **Advanced Placement and High School**
 - ▶ AP US History I
 - ▼ AP US History II
 - Lesson 63: The Homefront
 - Lesson 72: Consequences of the Civil Rights Movement
 - ▶ AP US Government and Politics
 - ▶ AP Physics B I
 - ▶ AP Physics B II
 - ▶ AP Environmental Science — COMING SOON
 - ▶ AP Calculus AB — COMING SOON
 - ▶ AP Calculus BC — COMING SOON
 - ▶ College

"KNOWLEDGE HAS BECOME THE PRINCIPAL SOURCE OF SOCIAL TRANSFORMATION."
ABDUL WAHEED KHAN
ASSISTANT DIRECTOR GENERAL FOR COMMUNICATIONS AND INFORMATION, UNESCO



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WORLDWIDE PROLIFERATION OF OCW





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OPEN COLLECTIONS





CURRENT CHALLENGES & OPPORTUNITIES

- Lack of Faculty Incentives/Rewards
- Changing the Culture
- Moving from “Publish or Perish” to
“Organize and Thrive”
- New Way for Faculty to Distinguish Themselves
- Identifying and Rewarding Stewards of
Best OER in their Fields



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CURRENT CHALLENGES & OPPORTUNITIES

- Adapting OER for Different User Groups
- Evaluating Learning Outcomes using OER
- Stimulating OER-related Philanthropy through Existing Collegiate Processes



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HOW YOU CAN HELP

- We recommend significant federal support for Open Educational Resources



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WHERE TO GET MORE INFORMATION

- [UNESCO Wiki](#)
- [Wikipedia OER Page](#)
- [New Hewlett Funded OER Portal](#)



FOOTHILL-DE ANZA'S BOARD POLICY

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MAKING IT HAPPEN

INTRODUCING PUBLIC DOMAIN (OPEN EDUCATIONAL RESOURCES) TO THE FACULTY AND STAFF

- What is it?
- How will students benefit?
- Who's already creating and using OER?
- What is the rationale for encouraging faculty to develop OER and use it in their classes?
- Who are the naysayers and what are their concerns?
- How does it affect academic freedom and intellectual property agreements?



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AN INQUIRY BASED APPROACH

- Campus conversations with the Academic Senate & Higher Education Leadership
 - To understand the board policy
 - To map a process to support faculty in learning about, using, creating, sharing and disseminating OER



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AN INQUIRY BASED APPROACH

- In collaboration with the Academic Senate
 - Engaged the Office of Institutional Research to design a study
 - Analyze the results
 - Discuss the findings broadly and widely
 - Identify the early adopters
 - Implement the findings



PUBLIC DOMAIN SURVEY

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Community College District

■ Key Findings

- 80% interested in using OER in their classes
- 31% already using OER in their classes
- 61% viewed them as high quality BUT
- 39% viewed them as lacking in quality
- Discuss the findings broadly and widely

■ Link findings to current technology projects underway



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Community College District

Board of Trustees Presentation



Foothill College



De Anza College

ETUDES – Sakai – Sofia *Learning Technology Collaborative Initiatives* & Public Domain Report

November 7, 2005



ETUDES Alliance

... institutional investments

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Antelope Valley College, CA
Bakersfield College, CA
Cerro Coso Community College, CA
Cogswell College, CA
Coastline Community College, CA
College of Alameda, CA
College of the Siskiyous, CA
Crafton Hills College, CA
De Anza College, CA
East Los Angeles College, CA
Foothill College, CA
Fullerton College, CA
Gavilan College, CA
Glendale Community College, CA
Harcum College, PA
Imperial Valley College, CA
Lake Tahoe Community College, CA
Laney College, CA
Los Angeles City College, CA
Los Angeles Harbor College, CA
Los Angeles Mission College, CA

Los Angeles Pierce College, CA
Los Angeles Southwest College, CA
Los Angeles Trade-Tech College, CA
Los Angeles Valley College, CA
Merritt College, CA
Porterville College, CA
Mendocino College, CA
San Bernardino Valley College, CA
San Joaquin Delta College, CA
Taft College, CA
Vista College, CA
West Los Angeles College, CA
Chabot College, CA
El Camino College, CA
Long Beach City College, CA
MiraCosta College, CA
Santa Rosa Junior College, CA
Skyline College, CA
Stephen F. Austin State University, TX
West Valley College, CA

■ Hewlett Foundation Support....



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Sakai Project

- University of Michigan
- Indiana University
- Stanford University
- MIT
- Foothill College
- UC-Berkeley
- Sakai Educational Partners
- Commercial Affiliates Program

- **Sinou** – Serves on Sakai Foundation Board of Directors
- CC Representation
- Institutional & Foundation resources

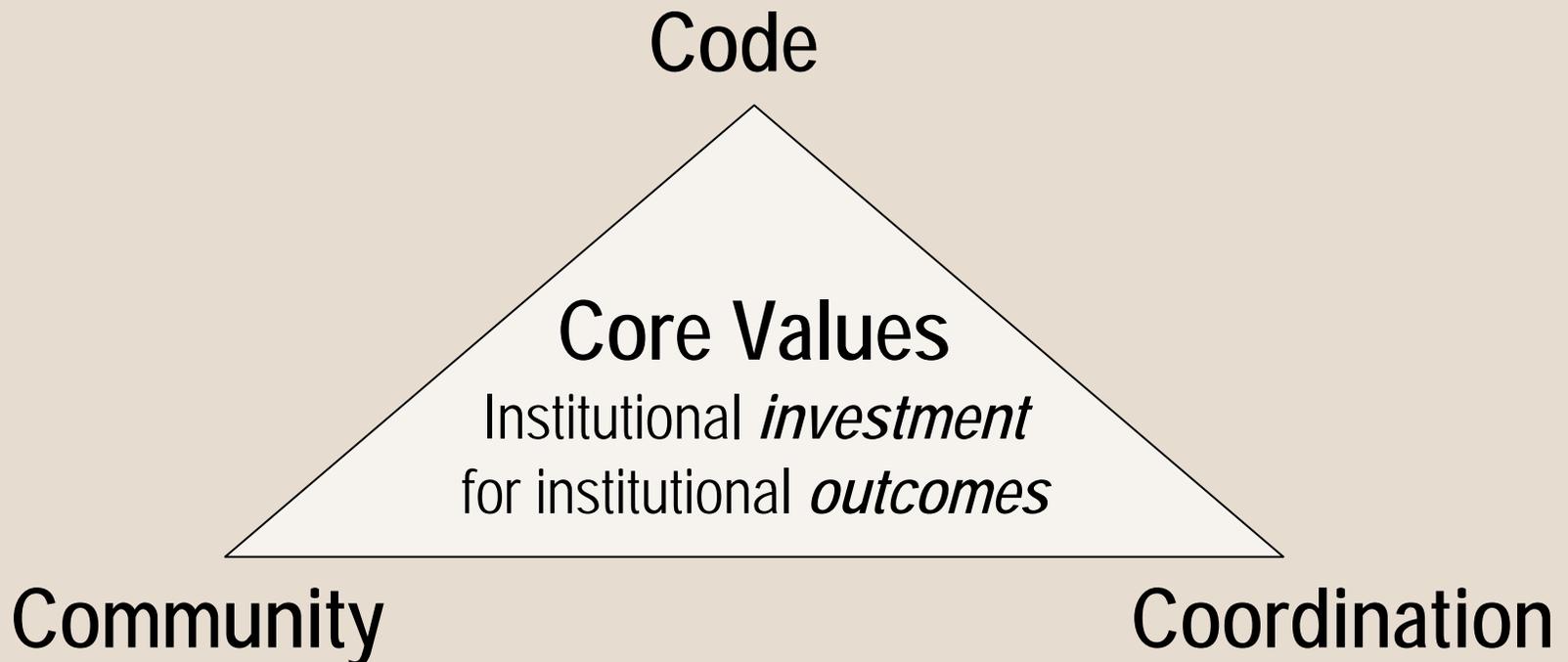




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Open Source Community

- Control of **Code & Destiny**
- Delivering **sustainable economics** for satisfied users
- Advancing **innovation** for user expectations





Open Educational Resources for Community College Courses

- Facilitate the *methodical* **open exchange, publication, and access** to *community college-level* content via the internet
- Publish **quality** educational content
- Embrace **inclusive** participation – allow building on each other's work

Sofia
Sharing Of Free Intellectual Assets



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Published Eight Open Courses

Introduction to Java Programming



Steven Gilbert, Orange Coast College

Creative Typography



Carolyn Brown
Foothill College

Musicianship II



Don Megill, Mira Costa College
Dave Megill, Mira Costa College

Elementary Statistics



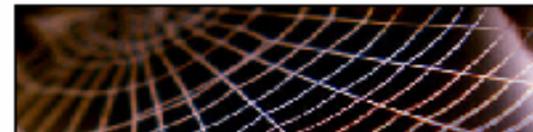
Susan Dean, De Anza College
Barbara Illowsky, De Anza College

Introduction to Macromedia Flash



Marcia Ganeles
Foothill College

Webpage Authoring



Jo Anne Howell, Gavilan College

Enterprise Network Security



Sukhjit Singh, De Anza College
Mike Murphy, Foothill College

Physical Geography



Allison Lenkeit
Foothill College

Open
Publishing
in Sakai

<http://sofia.fhda.edu/gallery>



Public Domain Report

FOOTHILL-DE ANZA
Community College District

■ Public Domain - Board Policy 6141

Goals

- To provide students with learning materials that reside in the public domain to augment and/or replace commercially available educational materials
- To create sustainable academic resources
- To provide opportunities for professional growth



FOOTHILL-DE ANZA
Community College District

Public Domain Report

■ Progress to date

- Public Domain Survey
- Public Domain Website

<http://faculty.deanza.fhda.edu/PublicDomain/>

- Public Domain Proposal Collaborative with Creative Commons
 - To design a web-based course and associated trainings to address the concepts and procedures associated with intellectual property, licensing, copyright and digital rights in the academic environment
 - To provide basic information for faculty interested in offering courses in the public domain and legally incorporating web-based materials, digital media and other electronic resources into their courses



Public Domain Website



[Home](#)

PUBLIC DOMAIN

[Board Policy on Public Domain](#)

[What is Public Domain?](#)

[What Materials are Actually in the Public Domain?](#)

[Creative Commons](#)

[Sofia Open Content Initiative](#)

[Wikipedia's List of True Public Domain Materials](#)

COPYRIGHT

[TEACH Toolkit on Copyright](#)

[Copyright Bay](#)

[UC Copyright Web Page](#)

Discussion

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Thursday, November 3, 2005

Google Inc.'s Internet-leading search engine on Thursday will begin serving up the entire contents of books and government documents that aren't entangled in a copyright battle over how much material can be scanned and indexed from five major libraries.

For more information see the full article at http://news.yahoo.com/s/ap/20051103/ap_on_hi_te/google_library:_ylt=Au3gLeTc

or search <http://www.print.google.com>

[Discuss](#)

November 2005						
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27	28	29	30			

[Oct](#) [Dec](#)

Tuesday, October 25, 2005

We have just made it through the first month of school and once again the most frequent question we get at the De Anza Library reference desk is "Where do you keep the textbooks?" Many students are dismayed when we search the catalog and we find a years-old edition of the book they need, which of course, some one else has already found and checked out. If they are really lucky, an instructor has brought in a copy of the book and placed it on Academic Reserves, which will at least make the text available in two-hour increments.

I recently ran across an article by Dean Baker, published online through the Center for Economic and Policy Research, titled "Are Copyrights a Textbook Scam? Alternatives to Financing Textbook Production in the 21st Century." (http://www.cepr.net/publications/textbook_2005_09.pdf).

Mr. Baker opens with a statistic that a student making minimum wage would have to work 170 hours to pay for a years worth of textbooks, and concludes by suggesting an alternative public financing plan for textbooks which could take better advantage of digital technology and the Internet and make many texts free to students.

Public Domain Resources



WIKIPEDIA
The Free Encyclopedia

[project page](#) | [discussion](#) | [edit this page](#) | [history](#)

[Create account](#) / [log in](#)

Wikipedia:Public domain resources

From Wikipedia, the free encyclopedia.
(Redirected from [Public domain resources](#))

There are many resources available on the net that are in the [public domain](#), and therefore freely usable without restrictions for Wikipedia content.

This page is intended as a list of only true public domain text resources. For other lists of resources, see below.

Wikipedia research resources. [↗](#)

- [GFDL resources](#)
- **Public domain resources**
- [Public domain image resources](#)
- [Non-PD resources](#)
- [Maps](#)

Shortcut:
WP:PD

Contents [hide]

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- 2 [U.S. copyright expiry flowchart](#)
- 3 [Please don't data dump!](#)
- 4 [Please include an appropriate template for the reference in article](#)
- 5 [Encyclopedic or general resources](#)
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 - 5.4 [Other](#)
- 6 [Philosophy, mathematics and natural science](#)
 - 6.1 [Astronomy and astrophysics](#)
 - 6.2 [Biology](#)
 - 6.3 [Chemistry](#)
 - 6.4 [Climate](#)
 - 6.5 [Geology and Earth science](#)
 - 6.6 [Mathematics](#)
 - 6.7 [Philosophy](#)
 - 6.8 [Physics](#)
 - 6.9 [Statistics](#)
- 7 [Social sciences](#)
 - 7.1 [Anthropology](#)
 - 7.2 [Archaeology](#)
 - 7.3 [Biography](#)
 - 7.4 [Economics](#)
 - 7.5 [Geography and maps](#)
 - 7.6 [History](#)
 - 7.6.1 [Ancient History](#)

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More Information

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Community College District

- <http://www.foothillglobalaccess.org>
- <http://www.foothillglobalaccess.org/etudes2>
- <http://sakaiproject.org/>
- <http://sofia.fhda.edu/gallery/>
- <http://faculty.deanza.fhda.edu/PublicDomain/>
- <http://www.oercommons.org/>



NEXT STEPS FOR FOOTHILL-DE ANZA

- Create Sustainable, Easily Available Learning Opportunities at our Colleges
 - Identify champions to introduce OER to the faculty
 - Identify how OER is already being used through studies, seminars & campus communications
 - Provide experienced faculty with venues to share what they are doing with other faculty and the Academic Senate
 - Create workshops that describe the costs/benefits of using OER in the classroom
 - Identify local, state and federal resources to develop and implement OER



NEXT STEPS FOR FOOTHILL-DE ANZA

FOOTHILL-DE ANZA
Community College District

- Charge to the Campuses
 - 2006-07 Action Plan based upon the research findings:
 1. How are the faculty who responded to the survey using public domain/open content materials in their classes?
 2. From the faculty who are using these materials, what, if any, outcomes can be identified (reducing cost of textbooks, better accessibility to higher quality materials, etc.)?
 3. What is the plan to introduce faculty to public domain/open content?
 4. Can we conduct an external scan of how these materials are being used by faculty elsewhere?



FOOTHILL-DE ANZA
Community College District

Board of Trustees Presentation



Foothill College



De Anza College

Report on Open Educational Resources

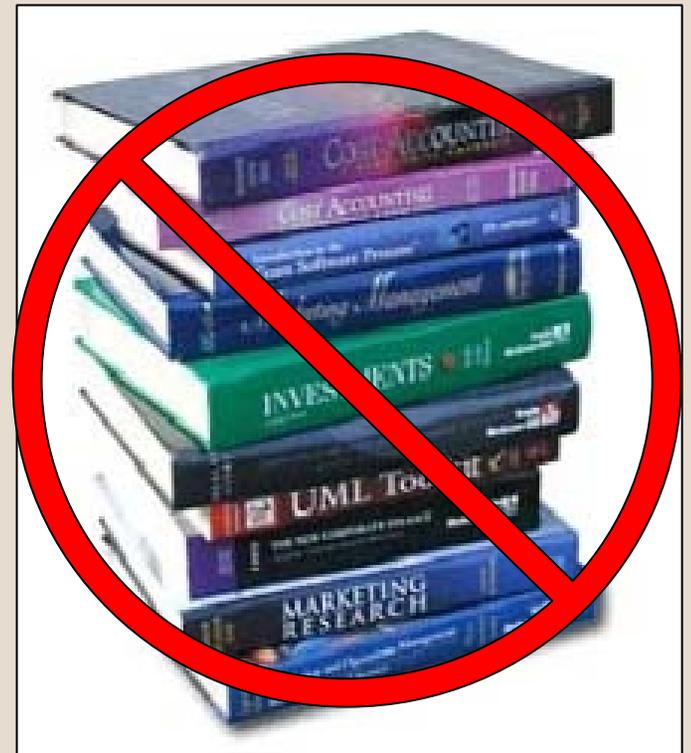
Dr. Judy Baker and Linda Elvin
February 5, 2007



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Goals for OER

- Broaden use of alternatives to textbooks while maintaining instructional quality
- Lower costs of course materials for students
- Inform and educate faculty about textbook alternatives





Where Are We Now?

■ Follow-up to OER Spring Survey

- 119 faculty respondents in spring 2006
- New surveys underway to determine their specific OER involvement, needs and interests



■ Stimulate interest among faculty

- White paper on intellectual property issues
- Presentation to De Anza Academic Senate



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Where are We Going?

■ Faculty training

■ Professional development course on “Intro to Open Educational Resources”

■ One-unit faculty development course

■ Delivery online via ETUDES NG
and open website

■ Presentation at Alliance for Distance Education in California (ADEC) Summit on “OER for Online Learning” on March 16, 2007

■ “How to Create Podcasts” workshop

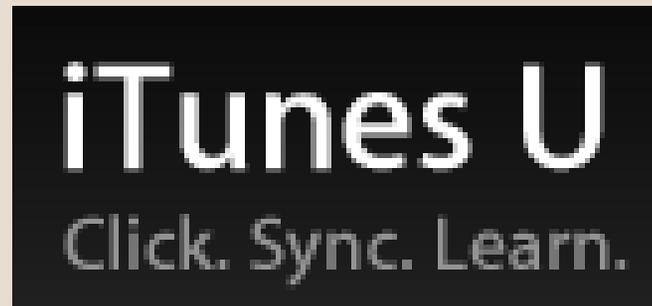




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Where We Are Going?

- Provide necessary tools and tech support
 - Needs assessment underway to determine the faculty multimedia storage and delivery needs at FH
 - Expand amount of content in **iTunes U**



www.deanza.edu/itunesu



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Community College District

Where We Are Going?

- Faculty collaboration and involvement
 - Identify OER experts within each division to liaison with librarians
 - Set up website for faculty to dialogue and share

The screenshot shows the Foothill Global Access Faculty website. The header includes the logo (a cluster of green and blue dots) and the text "Foothill Global Access Faculty" with the URL "fgafaculty.collectivex.com". Below the header is a navigation menu with tabs for "SUMMARY", "MEMBERS", "CALENDAR", "DISCUSSIONS", "FILE CABINET", "MANAGER", and "MY PROFILE". A search bar on the right contains the text "Foothill Global Access Faculty". Below the navigation menu, there are two tabs: "Forums" and "Email Blast". The main content area displays the breadcrumb path: "Forums » Open Educational Resources » What is OER?".



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Community College District

What are Our Challenges?

- Resources for faculty support
- Compliance with federal and state accessibility and fair use requirements
- Quality assurance
 - Limited availability of fully vetted and comprehensive learning materials in some disciplines
- Articulation and transfer issues

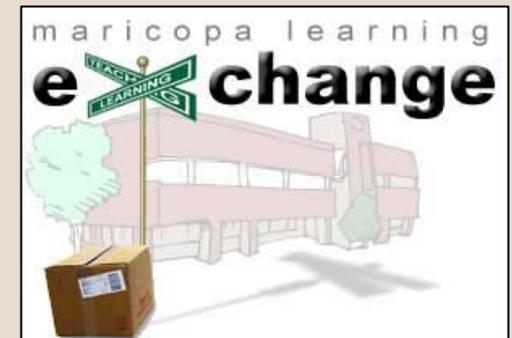
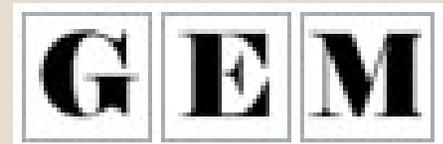




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What are Our Challenges?

- Identification of collaborative tools for development, use, and delivery of OER learning materials
 - Fostering use of the tools by faculty





Timeline to Success

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■ Winter 2007

- Complete follow up surveys
- Foster faculty interest in OER
- Provide OER development tools

■ Spring 2007

- Offer OER development and use training
- Expand faculty use of iTunes U as tool for delivery of OER

■ Fall 2007

- Establish OER “mentors” within academic divisions
- Provide tools for faculty to share and use OER

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24	25	26	27			
31						



NEXT STEPS FOR FOOTHILL-DE ANZA

- **Continue Inquiry-Based Approach**
 - Conduct and publish qualitative and quantitative studies of how faculty are using OER and how students are performing
 - Link the use of OER with Student Learning Outcomes research
- **Create Collaborations with OER Content Centers and Interested Community College Districts**
 - Connexions
 - MIT OpenCourseWare
 - Etudes Alliance
 - ISKME OER Portal
- **Report annual progress, challenges and opportunities to the campuses, board of trustees and policy makers**
- **Develop revenue streams to support the use of OER**
 - Introduce OER legislation
 - Seek OER foundation & philanthropic support
 - Provide incentives through professional development

**"Education is the most powerful weapon you can use to change
the world" - Nelson Mandela**

**Supporting Materials for the
Testimony to the Advisory Committee on
Student Financial Assistance
Prepared for the
Congressionally Requested Study
To Make College Textbooks More Affordable**

**Santa Clarita, California
March 5, 2007**

**Creating 21st Century Community
College Courses: Building Free, Public
Domain Textbooks for Students**

**Mr. Hal Plotkin, President, Board of Trustees
Foothill-De Anza Community College District
650.326.9673
hplotkin@plotkin.com**

**Dr. Martha Kanter, Chancellor
Foothill-De Anza Community College District
650.949-6100
kantermartha@fhda.edu**

Enacted December 2004

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The Chancellor will provide periodic reports, not less than annually, to the Board that detail the progress made toward accomplishing the goals delineated by this policy.

Executive Summary

In December, 2004, the Foothill-De Anza Community College District (CCD) Governing Board of Trustees became the first CCD in the nation to enact a formal policy supporting the use of free public domain learning materials as substitutes for commercial textbooks. This paper places the Foothill-De Anza CCD's new policy in context by reviewing the ongoing growth, development and availability of college-level public domain learning materials suitable for use by community college instructors and students. This paper also reviews some of the challenges that must be overcome to enable community college instructors and learners to take full advantage of these materials. Public domain learning materials are also known as Open Educational Resources (OER). OER are learning materials or resources whose copyrights have expired, or which have been released with an intellectual property license that permits their free use and/or re-purposing by others without the permission of the original authors or creators. OER include items such as courses, course materials, textbooks, streaming video of classroom lectures, tests, software and any other tools, materials or techniques used to transmit knowledge that have an impact on teaching and learning. Once appropriate supporting policies are in place, OER promise, among other benefits, to substantially increase the quality of teaching and learning, reduce a growing financial barrier to higher education, and enable more rapid transfer of best practices in pedagogy.

Introduction

Recent advances in technology, most notably the development of modern low-cost computers, the growth of the Internet and the availability of inexpensive digital storage media and playback devices, make it possible to bring the fruits of human learning to virtually every corner of the earth, localize the delivery of those educational resources and, in the process, provide billions of people with a new avenue to enrich their lives and support their growth, development and economic viability.

The growing movement towards Open Educational Resources (OER) is taking advantage of this opportunity. The OER community owes a significant debt to the open source software movement, which has provided a powerful demonstration of the practical benefits of openness and collaboration. In an extension of the open source model, educators around the world are leading the OER movement by building and sharing a wide variety of free high-quality instructional materials. Free tools are also being developed to publish, locate, use, evaluate, update, adapt and improve the resources. Taken together, these developments are enabling the greatest expansion in access to knowledge in the history of humanity.

Consider just some of what OER make possible:

- Students in places or life circumstances that leave them cut off from opportunity can take classes and learn from some of the best universities in the world.

- Costs imposed on students for higher education are substantially reduced when students use high-quality OER in place of increasingly expensive commercial textbooks.
- Learning outcomes can be improved when educators share best practices.
- Instructors in economically depressed and geographically remote regions can access large repositories of free, customizable and adaptable teaching tools, including reading materials, course outlines and science experiments.
- Educators at underfunded community colleges can use and repurpose learning materials developed and used in the best Ivy League schools.

The educator led OER movement is less than six years old. Nonetheless, the creation, sharing, use, re-use, adaptation and re-purposing of free, open, high-quality, easily accessible educational resources is already beginning to make a substantial contribution to global social and economic well-being. The Nairobi, Kenya-based African Virtual University, initially funded by the World Bank and now an independent intergovernmental agency, is working toward including OER as a core strategic element to augment the curriculum offered through 57 learning centers in 27 African countries. At the same time, the more than 700 universities in the Spanish and Portuguese-speaking world who banded together to form the Universia consortium have begun to support the development and use of OER in Argentina, Brazil, Columbia, Chile, Spain, Mexico, Peru, Portugal, Puerto Rico and Venezuela. Similar partnerships have recently taken shape in Asia, where China's Open Resource Education (CORE) and Japan's Open CourseWare Alliance are among those helping to facilitate the development and use of OER, including among large population groups that previously had little or no access to high-quality higher education opportunities.

In Europe and the United States, the production and use of OER is growing rapidly, increasing the potential for access and enhanced quality at private and public institutions of higher education, including community colleges and vocational schools. At the same time, self-learners are gaining access to a rich set of free learning materials previously beyond their reach. These developments provide higher education policy makers with a fresh new set of opportunities to spread knowledge and break down barriers to higher education. Unfortunately, community colleges in the United States have been slow to respond to this opportunity. Few if any have formal programs designed to support and enable the use of OER by instructors and students. There is also widespread confusion among faculty, administrators and students about the quality of these materials, how they can be located, permissible legal uses and organizational and instructional inertia, all of which must be overcome before the promise inherent in OER can be fully realized to the benefit of students, colleges and communities. These issues can, however, be successfully addressed through appropriate supportive policies and administrative procedures.

Improving the Quality of Teaching and Learning Through Resource Sharing and Collaboration

In most cases today, the quality of education, when it is available, is usually a function of the particular circumstances and conditions in an individual classroom or school. This has sometimes been called the "silo" model of education because educators and learners are often unaware of or cut off from better teaching methods and techniques used elsewhere. If a student is fortunate she may have access to a school and instructors whose curriculum and teaching methods enable the maximum degree of learning in the shortest possible time. The vast majority of eager learners do not have that opportunity. Many do not have access to excellent teachers or the most current and effective learning materials, including texts, videos, illustrations and practice tools. Or they may need extra assistance to learn key concepts.

OER address issues of quality and access and enable continuous improvements in teaching and learning as respected higher education institutions create and share a wide variety of high-quality educational resources free of charge. OER enable teachers and learners to access the best educational resources that are available to meet their specific needs. In the process, a new model that builds collaborative communities of teachers and learners is augmenting the old "silo" model of education. Instructors who take advantage of OER can provide multiple representations of concepts that come at a subject from different angles. Students and self-learners can repeat their exposure to different lessons as many times as needed in order to facilitate a deep understanding of the material. OER tools can also be used to form virtual study groups, which increase learning. Tests can be used as assessment devices that point students to specific material, including text, lecture presentations and practice tools that fill identified knowledge gaps. OER also give instructors access to materials and teaching methods used by others who teach similar classes, prerequisites and higher-level courses. A single course drawing on OER can contain high-quality learning materials developed by dozens of different educators.

Instructors, students and self-learners who use OER can replace "flat" educational experiences, where opportunity is a function of what one instructor or school can offer, with a constantly-evolving multidimensional educational process brought to life by teams of subject area experts. The growth of the OER movement promises to steadily enhance the quality of teaching and learning over time as the material is updated, improved, built upon and adapted for specific user groups. There are currently two primary methods employed to ensure the quality of OER. The first replicates traditional academic practices by using a carefully vetted, top-down authoring system in which an institution places educational learning resources that carry its brand into an open format for free use, re-mixing or adaptation by others. In this instance, the institutions are responsible for the quality of the materials. The second methodology relies on the same basic procedures used in the open source software community. In this model, an unlimited number of authors collaborate on the creation of OER. Both of these primary OER production methodologies stimulate new forms of knowledge sharing.

The differences between these two approaches reflect a divergence in philosophy

between those who believe a centralized and carefully controlled authoring system ensures quality and others who maintain that quality is best enhanced by an open process that invites contributions from as many people as possible. Those who prefer the branded approach, where an institution guarantees quality, contend there is no practical substitute for reliance on known authorities whose credentials are certified. On the other hand, those who prefer the more open OER production methodology maintain that the best way to ensure quality is to share and spread the responsibility for creating and maintaining quality among a greater number of contributors. Those holding this view often cite open source software programmer Eric Raymond's observation, published in *The Cathedral and the Bazaar*, that "with enough eyes, all bugs are shallow." The healthy contest between these two models replicates the current division in the global software industry, where both schools of thought have made valuable contributions.

The benefits provided by OER to faculty and students have been documented in two recent studies conducted by researchers at Tufts University and Utah State University, respectively. Tufts' OpenCourseWare site has been available online since June, 2005. The site contains 22 courses from 6 Tufts schools focusing on the health sciences and international affairs. The most popular course materials, according to download logs, include lectures, readings, lecture handouts and syllabi. Tufts recently conducted an OCW Intercept Survey, a web-based, pop-up survey instrument, which yielded 641 respondents for an 8.9% response rate. Tufts then sent a follow-up web-based survey instrument to volunteers, generating 42 respondents for a 20.3% response rate yielding 28 unique user profiles. Taken together, these user logs and survey data indicate that among users of the site, over half are self-learners, nearly one-fourth have their doctoral degree and just under 20% cite human medicine or health sciences and technology as their primary interest. On average, visitors to the Tufts' site spend over 30 minutes per visit reading and reviewing course materials. Nearly 40% of users download materials during their sessions. Faculty members who use the site surveyed indicate that Tufts OCW positively impacts their teaching practices by providing additional teaching materials, by enabling them to integrate Tufts materials into their courses, by increasing their knowledge levels in certain areas and also impact how course materials are developed by emphasizing instructional technology. All told, nearly 300,000 unique users accessed the Tufts OCW website within its first 15 months of operation.

Another recent study on the reaction of faculty members participating in the MIT OpenCourseWare (OCW) project, conducted by Preston Parker at Utah State University, yielded a similarly positive review. Parker used three sources of data for his study: (1) five years' worth of archived emails from the instructors at MIT to the school's OCW project administrators which discussed the benefits they had received by participating in the project, (2) the responses from three previous annual instructor surveys, and (3) interviews with the instructors themselves. "The results," note Parker in an abstract of his results, "show that there are many tangible benefits to MIT instructors participating in MITOCW. They feel they have more recognition academically because their work is out there to be viewed and used. They feel connections have been made with other instructors that may not have if it were not for MITOCW. The instructors were better able to understand what others colleagues were doing. These connections have resulted in better

publishing opportunities and grant proposal efforts. Instructors also feel that students who sign up for their classes are more prepared for the course. It is also convenient for the instructors to have the materials available and online for current and past students.”

In addition, other studies are currently underway to assess the quality of OER vs. traditional commercial educational materials in terms of learning outcomes and student success. The early data from these studies indicates a clear advantage for certain forms of OER. Data and conclusions from these studies will be integrated into future versions of this paper.

The next section of this paper highlights some of the high-quality OER recently made available.

OERs’ new Higher Education Eco-System:

Learning Objects, Library Collections, Encyclopedia, Online Journals, Digital Archives, Courseware, Courses and OER Tools

Teachers and learners are increasingly drawing upon OER to enhance educational outcomes. The options currently available include resources with little or no interlocking structure, such as learning objects, semi-structured learning materials, such as encyclopedia, digitized library collections and courseware, and highly-structured materials, such as courses. Because these resources are free and open, they can be combined, adapted, modified and reconfigured as needed. The following examples illustrate the robust, complementary nature and utility of these recently developed free learning materials, all of which can be accessed via the Internet. The examples are presented in the following order: unstructured OER focusing on a single topic or idea, OER with more structure, such as materials grouped by subject area, and fully structured OER, such as complete courses.

Learning Objects

Learning objects are "small electronic units of educational information that are flexible, reusable, customizable, interoperable, retrievable, facilitate competency-based learning and increase the value of content," according to a commonly accepted definition developed by researchers at the University of Wisconsin. Examples of learning objects include a definition of a word or concept, an illustration, an interactive diagram, a simulation of a chemistry experiment and a wide array of other online tools and exercises that help students understand a particular point or principle.

Learning objects can be thought of as a set of educational raw materials that can be used in different ways. Instructors can integrate learning objects into curriculum, bundle them into courses or use them in combination with other learning objects to create more complete or comprehensive sets of learning materials. Learning objects also help instructors discover different ways to convey information and teach specific concepts or ideas. Students and self-learners can use learning objects to brush up on a topic, find

information in formats that fit their individual learning styles or to verify their comprehension of material.

One of the earliest and best known examples of a learning object repository is Rice University's online Connexions "content commons," which currently contains nearly 3,000 small chunks of knowledge that can be accessed online. As of December 2005, a worldwide community of authors and contributors had collaboratively built more than 115 complete courses using these learning objects. By creating, building and collaboratively using learning objects Connexions "convey[s] the interconnected nature of knowledge across different disciplines, courses and curricula, move[ing] away from a centralized, solitary, publishing and learning process to one based on connecting people into global learning communities that share knowledge," according to the site's founder. By September 2005 more than 430,000 different users from 157 countries were tapping into the OER made available through Connexions each month. Other examples of learning object repositories include Merlot, the Miami Dade's Virtual College Learning Objects and the SMETE Digital Library Collection, which contains a comprehensive list of learning object repositories and servers.

Digitized Library Collections

Digitized library Collections are another fast-growing form of OER. These collections feature curated reference and source materials that would typically be found in a library, including books, consumer and trade catalogs, magazines, professional journals and other periodicals, posters, photographs and manuscripts, among other items. Instructors can integrate these materials into their courses and, like students, use them for research. Harvard University Library's Open Collections Program (OCP) is one of the first efforts by a major academic institution to create a freely available curated digitized library collection. "The goal of the of Harvard University Library is to increase the availability of historical resources from Harvard's library and museum collections for purposes of teaching, learning, and research both at Harvard and around the world," according to the OCP website. OCP was established in 2002 and currently features two different subject specific open collections, on Working Women from 1800 to 1930 and Emigration and Immigration to the United States from 1789-1930.

Similar undertakings include the Public Library of Science, which publishes professional journals in the fields of biology and medicine, the University of California's recently established American West Collection and the Library of Congress' Serial and Government Publications Division program, which is digitizing 30 million pages from newspapers covering the period from 1836 to 1922. Commercial companies such as Google and Yahoo! also have digital library projects in early stages of development.

Encyclopedia

Encyclopedia are reference materials that contain authoritative definitions and/or descriptions of a variety of topics, which are usually presented in alphabetical order. Educators, students and self-learners use encyclopedias to conduct research and verify information. Wikipedia, which features nearly a million encyclopedia-style entries authored by a global community of collaborators, is currently the best known and most

widely used open encyclopedia. The entries in Wikipedia, which are generally but not universally reliable, are created and maintained by teams of volunteer experts who police entries on the site and remove erroneous material in a consensus-driven process. By contrast, the free Stanford University Encyclopedia of Philosophy relies on invited subject area experts to create entries, which are then peer-reviewed before being placed online.

Online Archives

Online archives are collections of material available in a digital format. In most cases these searchable archives provide no services other than storing and enabling the retrieval of the digitized material, including snapshots of the content on different websites at different times. Online archives can also include copies of materials that were published by websites that are no longer in operation, as well as digital versions of audio and video recordings. Instructors, students and self-learners use these materials for research purposes and can also integrate them into formal or informal educational programs. The Internet Archive presently offers the most complete set of free online archives available. It contains more than 1,000 study guides, course lectures and other academic resources and more than 25,000 texts, 55,000 audio recordings, 25,000 live music recordings and approximately 25,000 images, including movies, videos and animations, as well as a "wayback machine" that displays the contents of websites which have been changed, deleted or which are no longer in operation. The Alexandria Archive, which focuses on archeology, is a more subject specific OER archive.

Courseware

Courseware are instructional materials used to teach a specific course. Examples include lecture notes, texts, reading lists, course assignments, syllabi, study materials, problem sets, exams, illustrations and, in some cases, streaming videos of in-class lectures. The free distribution of courseware enables teachers to see how colleagues in the same discipline structure similar courses. Instructors exposed to courseware can improve their teaching and learning outcomes by examining the sequence in which material is presented, the resources and techniques used to convey information and the tools used to assess learning outcomes. Courseware gives new teachers a set of educational blueprints they can use to build their own courses and to improve their pedagogy. Students can use courseware to augment their education. Other learners, including workers seeking to keep their skills and knowledge up-to-date, can use courseware to guide their studies.

In May 2001, the Massachusetts Institutes of Technology initiated the first effort to release all of the courseware produced by an institution of higher education. MIT's pioneering OpenCourseWare (OCW) project is an online publication of the course materials used in all of the school's 32 academic departments. "Through MIT OCW, educators and students everywhere can benefit from the academic activities of our faculty and join a global learning community in which knowledge and ideas are shared openly and freely for the benefit of all," notes MIT's President Susan Hockfield in a welcome that appears on the site. More than 250,000 visitors used the site during the initial one-month survey period in late 2004. More than 40 universities around the world, including 20 in China, 11 in Europe, six in Japan and three others in the United States, have joined

MIT in releasing the courseware used at their schools. Current participants include Tufts University, Utah State University, Johns Hopkins University School of Public Health, the Universities of Tokyo and Osaka, France's École Polytechnique and the Peking, Beijing Jiaotong, and Nanjing Universities.

Courses, Including Some That Use Cognitive Science Techniques

A wide variety of fully structured courses released as OER are now available. They include advanced placement, community college and undergraduate college level courses. Some of these are conventional courses created by a single instructor that can be accessed online. Others have been created with the help of teams of cognitive scientists to maximize learning outcomes through the application of the latest research into teaching and learning. All of these courses rely on an embedded instructional design to enable self-directed learning. The more highly developed cognitively-informed courses include a variety of tools custom developed for each topic such as practice sessions, concept level learning assessments, cognitive tutors, virtual laboratories, group experiments, simulations and automated re-direction to learning materials that address identified deficits in comprehension. Many of these courses have been tested and refined with the audience of learners targeted. All of these courses are complete, standalone products with a specific set of pre-defined learning outcomes. Institutions of higher education and other schools can use these courses, including those which employ cognitive science techniques, to augment or replace the most common large lecture format classes. Likewise, students and self-learners can use these courses to deepen or reinforce their knowledge of specific subjects.

The Open Learning Initiative (OLI) at Carnegie Mellon University (CMU) is the best-known example of a growing repository of courses designed using cognitive science techniques. At CMU, teams of cognitive scientists are working with professors with subject specific expertise to develop and continually improve seven fully contained college level courses as OER. The course topics include biology, statistics, economics, physics and logic. "Cognitive theory and faculty expertise guide the initial development of each course," according to the OLI website. "As the courses are delivered, OLI researchers conduct a variety of studies to examine the effectiveness and usability of various educational innovations. The research results are used not only to improve the courses themselves, but also to contribute to a growing understanding of effective practices in online learning environments."

At the same time, the Monterey Institute for Technology and Education (MITE), is in the process of developing and improving a robust, media-rich set of free and open Advanced Placement and college level courses in its National Repository of Online Courses (NROC). The NROC currently features free, high-quality courses in math, history, physics, geology and environmental science.

New Tools Support and Empower the OER Community

The tools recently created or currently in development to support the OER movement can be divided into three categories: Intellectual Property Management, Open Learning

Management Systems and Distribution and Dissemination, which includes OER community support tools. The Foundation has made grants to projects in each of these areas.

Intellectual Property Management

Concerns about intellectual property (IP) issues related to copyright were and remain one of the most significant obstacles facing the OER community. Fortunately, new online tools are now available that streamline the management of IP issues in an OER-friendly way. The most important of these tools were developed and are being provided free of charge by Creative Commons, a non-profit organization based in San Francisco, California, which has recently spawned similar or allied organizations in Asia and Europe. Creative Commons offers a menu of customizable IP licenses that can be electronically appended to intellectual properties free of charge. Creators of intellectual properties such as learning objects, courses, courseware or lectures can select the IP licensing terms they want to apply to their works from a list on the Creative Commons website, which generates the requested machine-readable license. Users of the Creative Commons website can affix a link to the license(s) they have created to an unlimited number intellectual properties at no cost. The most commonly used Creative Commons' licenses permit others to use the materials free of charge for non-commercial purposes, to adapt the materials as desired, and/or to provide written credit to the original creators of the materials. Creative Commons "some rights reserved" licenses are more flexible than pre-existing "all rights reserved" copyright rules and regulations. They enable the creators of intellectual properties to share materials on their own terms, which often involves allowing materials to be used by students and educators free of charge but requiring payments if the materials are bundled into a commercial product that is sold.

Open Learning Management Systems

Open Learning Management Systems (OLMSs) are a derivative of what are sometimes called Course Management Systems (CMSs) or Virtual Learning Environments (VLEs). These systems are software products that enable productive educational interactions between teachers and learners. The best OLMs, CMSs and VLEs typically include systems for publishing material online. Instructors who use these systems can place instructional materials into a blank template which publishes the entries in a common format. These systems include a navigational structure that guides users through the material, which may include learning objects, a course, and/or other instructional items such as reading materials, streaming videos of lectures, diagrams, illustrations, assignments, learning assessments, tests and quizzes as well as interactive features that support group work and direct learner/teacher contacts. One of the primary goals of these systems is to provide common online formats that can be applied to different areas of study. The systems standardize the presentation of digital or electronic educational materials and streamline the process of creating online or distance learning courses.

There are several commercial course management systems currently available. None of these systems have proven to be an ideal match for the requirements of the OER community, which benefits from the maximum degree of flexibility and customizability at the lowest possible cost. Fortunately, thanks to the collaborative development of the community source SAKAI project, this need is now being met. The SAKAI project has its origins in two CMS development projects that began independently several years earlier at the University of Michigan and Indiana University. More recently, the SAKAI project has expanded into an independent non-profit foundation whose member/partners include Stanford University, MIT, the Foothill-De Anza Community College District and the UPortal Consortium, which includes roughly 100 higher education institutions, all of whom are collaborating to create free open source software applications for use by their organizations.

The SAKAI project is using the same community source model that has proven successful in other open source applications; the software is available free to all end-users but institutions that want to be part of the governance structure that guides the project must pay an annual membership fee. Likewise, the Australian-based Moodle project, which employs a social constructionist pedagogy approach to the transmission of knowledge, is another example of an OLMS. Similar projects with overlapping or complimentary features include Melete, ETUDES-NG and eduCommons. Because these are open source projects, each of them are building knowledge and resources for the field while also creating a pool of OER-friendly software code that can be shared and continually improved.

Distribution and Dissemination

Members of the OER community are beginning to address issues related to distribution and dissemination of these materials. These efforts are still in their infancy. Nonetheless, some of these tools are already more useful for users within the education community who are seeking OER than the general interest search tools offered by commercial firms such as Google, Yahoo! and Microsoft, which often return extraneous or irrelevant material in their results.

The early progress in this area includes the Monterey Institute of Technology's National Repository of Online Courses (NROC), which contains a growing number of complete courses released as OER, many of which have been improved by MITE personnel based on the set of quality criteria identified by the same organization. Other related efforts include online repositories and portals that contain OER, including Merlot, the Open Content Alliance, the Development Gateway Foundation's OER Topic Page and the eGranary Digital Library Project, which brings digital resources to remote communities that lack internet connections. (See the index of this document for a partial list of OER resources). In addition, the William and Flora Hewlett Foundation is currently supporting an OER portal, now in development, that is expected to provide users with the ability to locate OER based on specific search criteria.

Developing Strategies to Assess and Ensure the Quality of Content

Another major issue that confronts the OER movement is the need to develop better methods to assess the quality of courses and other learning materials. One early example is the Online Course Evaluation Project (OCEP), developed by the Monterey Institute for Technology and Education (MITE), which has identified 52 course evaluation factors that help determine the quality and dimensions of an online course.

The OCEP is not a definitive guide. But it is one way creators and users of online educational materials, including OER, can consider and measure issues of quality. In essence, the OCEP provides a yardstick that is applicable across the entire online education field. The characteristics identified include an evaluation of the presence or absence of clearly stated learning objectives, the instructional philosophy and teaching techniques embedded in the course, the use of graphics, illustrations, animation and other interactive tools and the effectiveness of testing and learning assessment exercises, among other items.

The OCEP guidelines provide educators and learners with an index they can apply to measure the quality of online learning materials as well as a roadmap they can rely on to improve those materials. The OCEP identifies and evaluates existing online courses in higher education, Advanced Placement and high schools.

Carnegie Mellon University's Open Learning Initiative is also raising the OER quality bar. OLI brings together teams of discipline-specific faculty with cognitive scientists to create, refine and improve courses to ensure quality before they are offered to the public. OLI courses provide declarative content interspersed with small demonstration Internet applications, called "applets," as well as short self-assessments that provide students opportunities for both practice and immediate feedback. OLI courses facilitate a highly customized approach that enables a single interactive online course to accommodate a variety of different learning styles. Students using these courses can take a different path through the material based on their own aptitude, previous exposure to the material and level of comprehension and retention.

Taken together, these quality-centric activities are helping to establish, refine and streamline optimal methods and procedures for the production, release and most productive and efficient use of OER. This recent progress is also beginning to have a highly desirable spillover effect for other competing learning materials, as well.

Challenges and Opportunities Moving OER into the Educational Mainstream The Role of Community Colleges

The initial progress in creating OER content has generated a large pool of accessible high-quality learning materials and successfully demonstrated new models of knowledge sharing. But much remains to be done. Two major challenges and opportunities in the area of OER content development remain. The first revolves around the need to sustain the ongoing production and release of OER by the instructors and institutions currently

producing these materials, as well as to encourage similar contributions by others. This may involve building and improving new or better tools that make the OER production process more efficient and developing other strategies that motivate and encourage the wider educational community to strengthen the OER movement through their participation. The second is to accelerate adaptations of OER for specific applications and groups of learners, to harvest and refine OER, so the materials are more useful in a greater variety of educational contexts. Progress in both of these areas is essential in order to move OER into the mainstream of the global education system. Advances in these areas will encourage the creation of additional OER content, which will stimulate more use and still greater demand.

Strategies, programs and projects that integrate OER into established educational processes are needed. Despite recent progress, the production and use of OER is still not seen as integral to the operations of most educational institutions, including many with active OER programs. Instead, scholars at a handful of academic institutions have created the majority of the certifiably high-quality OER that presently exists with substantial outside philanthropic support. At present, it seems likely most of these efforts would cease in the absence of such support. In a similar vein, just a tiny fraction of scholars, teachers and instructors in the United States and elsewhere currently receive any incentives, compensation or tangible rewards from their employers to produce, adapt, use or improve OER. Instead, the educators who produce OER without outside financial support from Foundations typically do so to make a positive difference in the world or to create learning materials for their own purposes, which they then share. Frequently, these individual efforts occur during non-working hours. Often, instructors use their own resources, technology and equipment. These activities are expected to continue. But the OER movement will not reach the critical mass required to achieve its full potential, including facilitating the dramatic improvements in the quality of teaching and learning that are possible on a global scale, without increased support from existing educational institutions, including through conventional budgeting and collegiate philanthropic channels. The model policy in support of OER enacted by the Foothill-De Anza Community College District Governing Board of Trustees, which appears on page 2 of this document, is designed to begin to address this need.

In addition, a better understanding of the intersection between OER supply and demand would be helpful. Ideally, progress in this area would result in the production and/or organization of more carefully targeted, high-quality OER for different groups of teachers and learners at different levels. This will encourage greater use and reliance on OER, stimulate demand and contribute to enhancing the overall quality and utility of OER. Additional strategies and programs that encourage college and school administrators to create incentives that encourage faculty to develop and share OER adaptations would also be useful. That may include providing faculty release time for their production, positive consideration of these activities during tenure review and promotion processes and the cultivation of institutional cultures that elevate the professional stature of contributors to the OER movement. These areas are also ripe for fresh initiatives, approaches and ideas.

The specific OER content areas that could be fortified with more institutional support include digitized collections of academic materials whose copyrights have expired, including textbooks, the creation of more interactive learning tools and increased support for the creation and release of additional multimedia learning resources including, most notably, videos of in-class lectures, presentations and demonstrations. Early evidence indicates that video is a highly preferred OER delivery method. The OER field would benefit greatly from the creation of additional raw video material (i.e. authoritative footage) as well as related recommendation engines and more robust techniques for archiving, retrieval and the affordable and cost-efficient distribution of high bandwidth video files without degradation as use increases.

There is also an ongoing need to test, develop and refine new types of public and private partnerships between the OER community and commercial entities in the area of content creation that enable both groups to achieve their goals while respecting their differing requirements in terms of openness and profitability. An early example currently in development by a commercial firm involves the creation of an advertiser-supported search tool for OER video.

The OER movement also needs better, more timely and cost-efficient methods to convey information about quality and course-level applicability to end-users of OER, including derivative OER. These methods may include recommendation engines, search systems augmented with quality-related components, open learner and educator surveys, automated quality assessment tools, certifications by discipline-specific professional societies and organizations, new types of OER-oriented social networking systems and other strategies yet to be identified. At the same time, there is also a need to further develop, refine and streamline the two primary methods of creating OER -- top-down and bottom-up -- to better ensure the quality of the materials and increase the pace of their production.

OER can, by definition, be built upon and are open to modifications. As such, changes can be made to OER that may, on occasion, render the materials less accurate and reliable. What's more, there is no commonly accepted mechanism to track changes to OER, assess the utility or desirability of modifications or convey authoritative information regarding quality to users of derivative OER in cases where learning materials have been modified or edited.

The two most common methods of ensuring the quality of OER have ardent champions. One, epitomized by MIT's OpenCourseWare and Carnegie Mellon University's Open Learning Initiative, relies on a centralized system that puts control and responsibility for the quality of the materials in the hands of known academic experts. Rice University's Connexions project and the open, online encyclopedia Wikipedia demonstrate the other primary method of ensuring quality, which involves the creation of self-regulating, volunteer contributors who are responsible for the quality and reliability of the content. The proponents of volunteer-driven, bottoms-up practices point to the experience and model established by Wikipedia, which had just 12 topic entries before its founders abandoned their original centralized quality vetting system in favor of the decentralized

volunteer driven process that has led to the creation of nearly a million subject entries. Wikipedia's subject monitors, called system administrators, are elevated to their status by existing Wikipedia editors in recognition for having made accurate and useful contributions to the service. Although there have been some embarrassing exceptions, erroneous modifications to subject material on Wikipedia are generally corrected within five minutes, according to data compiled by the service's operators.

On the other hand, those who favor a more centralized approach to the maintenance of quality contend that no volunteer effort, no matter how robust, can be an effective substitute in the long run for the vetting and review processes more typically used in the academic community, which involve peer review by experts whose qualifications are known and certified. The high quality learning materials produced by Carnegie Mellon's OLI, which have been created by teams of subject matter experts and cognitive scientists, exemplify this approach.

Both of these approaches have advantages and disadvantages. The bottom-up, grassroots tact to ensuring the quality of OER is typically less costly and produces material more quickly, but quality is random and inconsistent. The top-down centralized model produces material that is generally of very high quality but does so more slowly and at considerably higher cost. Over time, the best results are likely to be produced in the fast-evolving continuum that draws on the strengths of each of these models. As each side succeeds new resources are created that can be integrated into OER produced, assembled or organized in both the top-down and bottom-up methods. Because these open learning materials and tools are shared, in this contest there are no losers, just winners. Successes on both sides make the other stronger. As such, there is an ongoing need to identify, implement and systematize improvements to both of the primary models of OER production and to measure the results. Better methods can also be developed to close the gap between the top down and bottom up OER production methodologies in order to combine them in ways that produce better results more quickly and cost-efficiently than could otherwise have been achieved. These areas are ripe for fresh initiatives and further research.

Professional societies and subject-specific scholarly organizations may also have an important role to play in assessing and certifying the quality of OER in the future. Currently, a handful of professional societies, including the National Science Teacher's Association, are beginning to take on this role. As the production and use of OER continues to grow it seems likely the materials will have an impact on developments within individual fields of study that may compel more of these organizations to get involved. Developing strategies that more swiftly integrate professional societies and subject-specific scholarly organizations into OER quality control procedures is another area where progress can be made. This is also true for groups involved in monitoring and maintaining the quality of instruction in community colleges.

OER Tools: Current Challenges and Opportunities

The main challenges and opportunities in the OER tool arena revolve around the need to facilitate additional efficiencies in the production, translation, localization, evaluation and dissemination of high-quality learning materials at the lowest possible cost, and to streamline and improve processes that help end-users find the materials that best meet their needs. The OER community would derive substantial benefits from the development and implementation of new strategies and tools that build and maintain OER-oriented online or social networking communities, integrate OER into currently-popular online communities and automatically port, or adapt, the material for use on popular electronic platforms other than computers. Strategies that stimulate the "viral marketing" effect to cost-efficiently increase the use of OER to a degree sufficient to generate authoritative user-recommendations are also important and timely. Each of these areas presents substantial challenges, which, if resolved, will dramatically increase the spread and practical utility of OER. Governance officials in the community college arena have an important role to play in supporting the creation of solutions in these areas.

Recent progress includes the creation of a new open source lesson-building tool that is designed to enable educators to create, archive and share learning materials using a single interoperable platform that is integrated with the SAKAI course management system. The Melete project has been led by Foothill College Dean Vivian Sinou. An initial version of Melete has been released. Future iterations are expected to contain features that feed lesson sequences to students who have satisfied prerequisites, enable more productive and reliable uses of the mysql open source database and provide new and easier methods for grading course assignments and facilitating group work, among other features. The Melete project development team has charted a three-year plan to add more than two dozen other features to the software. The open source nature of the project makes it possible for others to suggest ideas that may make the software more useful as well as to contribute code that accelerates its development. The combination of SAKAI and Melete provides the education community with a common platform for the creation and delivery of OER. The development of this integrated platform creates new opportunities for others who see and can implement new features that extend its functionality and utility.

The translation of OER into languages other than their origin language remains a major challenge. At present, virtually all of the reliable translations of OER are being performed manually by human beings in a process that is time consuming, slow and relatively costly, even when volunteers are involved. There are automated language translation services but none have proven to be suitably robust for the OER community, which requires near perfect accuracy. Likewise, there is also a need for new tools that can help accelerate the process by which OER is localized or adapted for specific groups of users, which is another process that is currently performed manually. Progress in these areas would be highly desirable.

Despite some recent strides, OER search tools are still in their infancy. There is considerable room for improvement. These improvements and enhancements may include tools that help educators and learners search for materials based on desired learning outcomes, the curricular requirements of specific school districts and other academic jurisdictions and by grade or expertise level, including by completion of

prerequisite material. A handful of grantees of the William and Flora Hewlett Foundation have begun to work with several commercial companies to create new OER-specific search tools but the utility of these tools has yet to be determined. This area remains ripe for additional initiatives and progress.

The OER community would also benefit from the development of social networking tools organized to meet the needs of teachers and learners. In recent years, the popularity of social networking tools such as myspace.com and facebook.com have demonstrated the powerful role that self-organizing communities can play in spreading news ideas and practices among geographically dispersed groups with similar interests at little or no cost. There is, at present, no similar common or popular social networking tool for the OER community, which lacks resources to advertise its wares in the conventional fashion. As such, there is a need for the development of new viral marketing strategies and tools that give life to OER-specific communities and or new applications that integrate pointers to recommended OER into the most currently popular social networking settings. These tools could also be used to support the formation of virtual study groups and facilitate peer-learning, which makes progress in this area particularly important.

There is also an ongoing need for additional technical solutions that will enable the OER community to continue to grow in scale without having to change its basic no-cost to end users model. These technical solutions may involve distributed computing platforms that support the dissemination of high-bandwidth files, such as video, in ways that do not involve the use of large, centralized clusters of servers which are costly to purchase, operate and maintain. This may involve peer-to-peer software applications, none of which have been ported to OER to date. The practical utility of OER will also be increased by the development of automated processes that allow the learning materials to be accessed on devices other than computers, including cell phones, personal digital assistants (PDAs) and iPods.

In each of these areas the underlying issue revolves around the ongoing need to achieve additional efficiencies in the production, storage, transmission and effective use of OER.

Conclusion

The OER movement has come a long way in a very short time. Rather quickly, it has developed an impressive and useful collection of free high-quality educational content and supporting open source tools that are beginning to break down longstanding barriers to the access of knowledge around the world. All this has been accomplished in less than a decade with a relatively small amount of financial support, far less than the average large city in the United States of America spends on education in a single year. Nonetheless, the success and sustainability of the OER movement is by no means assured. Fundamental challenges remain in each of the areas highlighted in this paper.

The long-term prospect of viability for the OER movement remains where it has always been: firmly in the hands of the education community itself. If OER are integrated into the mainstream of the global education system through the application of supportive

higher education governance policies the movement will continue to grow in ways that create an ever-improving set of high-quality learning resources freely available to all. On the other hand, this promising young movement could die on the vine if it fails to meet the needs of its intended users in a practical manner. Either way, the outcome will have a profound impact on education, opportunity and the global economy for decades to come. It is difficult to think of any other field that would benefit more in the years ahead from the concerted efforts of people with talent and skills who want to give the next generation the best possible chance to achieve its full potential. A few short years ago, when Nelson Mandela observed that "education is the most powerful weapon you can use to change the world," he could not possibly have imagined that humanity would soon be in the position to create and build an entirely new, free set of high quality educational resources that could rapidly be brought within reach of most of the planet.

The questions now are: what will humanity make of this opportunity?

And, what role will community colleges play?

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Partial Index of Open Educational Resources (OER) July, 2006

Open Repositories & Portals:

Textbook Revolution.org <http://textbookrevolution.org/>
UNESCO International Institute for Educational Planning's Open Educational Resources
<http://oerwiki.iiep-unesco.org/>
WikiBooks: <http://en.wikibooks.org/>
BBC <http://www.bbc.co.uk/>
Commonwealth of Learning's Knowledge Finder
<http://www.colfinder.org/public/index.jsp>
Development Gateway Foundation, OER Topic Page
<http://www.developmentgateway.org>
Digital Learning Commons <http://www.learningcommons.org/index.php>
Discovery Channel, Global Education Partnership
<http://www.discoveryglobaled.org/whoweare/onlineclips.html>
DSpace <http://www.dspace.org/>
Gateway to Educational Materials <http://thegateway.org/>
Internet Archive, Education <http://www.archive.org/details/education>
Knowledge Commons <http://www.edclicks.com/>
OERPortal.org* (in progress)
OpenContent.org <http://www.opencontent.org/>

OpenCourse.org <http://www.opencourse.org>
Smithsonian Institute <http://www.si.edu/>

Institution-Specific OER Collections:

MIT OpenCourseWare* <http://ocw.mit.edu/index.html>
Internet Archive* <http://www.archive.org/>
Wikipedia <http://www.wikipedia.org/>
Johns Hopkins School of Public Health OpenCourseWare* <http://ocw.jhsph.edu/>
Tufts University OpenCourseWare* <http://ocw.tufts.edu/Help>
Foothill-De Anza College, Sharing of Free Intellectual Assets (Sofia)*
<http://sofia.fhda.edu/>
Utah State University OpenCourseWare* http://ocw.usu.edu/Index/ECIndex_view
British Open University** <http://www.open.ac.uk/>
Carnegie Mellon Open Learning Initiative* <http://www.cmu.edu/oli/>
Monterey Institute for Technology and Education, National Repository for Online
Courses* <http://www.montereyinstitute.org>
Rice University Connexions* <http://cnx.rice.edu/>
Notre Dame University OpenCourseWare ** (in progress)

Non-English Open Educational Resources, Including Translations:

<http://www.twocw.net> for traditional Chinese translation of MIT OCW
<http://www.cocw.net> for simplified Chinese translation of MIT OCW
China Quality OpenCourseWare http://www.core.org.cn/cn/jpkc/index_en.html
Chinese Open Resources for Education* OCW Translations: <http://www.core.org.cn/>
ENSTA http://www.ensta.fr/Approfondir_sa_formation/Cours_en_ligne/
Japan OpenCourseWare Alliance <http://www.jocw.jp/>
Universia <http://www.universia.net/>
Paris Tech OpenCourseWare (in progress)
<http://www.polymedia.polytechnique.fr/Sommaire.cfm>

Discipline Specific Open Educational Resources:

Archeology Alexandria Archive* <http://www.alexandriaarchive.org/>
American Memory -- Library of Congress <http://lcweb2.loc.gov/amhome.html>
Digital History <http://www.gliah.uh.edu/index.cfm>
Harvard University Library Open Collections Program <http://ocp.hul.harvard.edu/ww/>
History Matters <http://www.historymatters.gmu.edu>
Internet Modern History Sourcebook
<http://www.fordham.edu/halsall/mod/modsbook.html>
University of California, American West Collection
<http://www.cdlib.org/inside/projects/amwest/>
World History Sources <http://chnm.gmu.edu/whm/whmfinding.php>
Center for Health Preparedness – Johns Hopkins University
<http://www.jhsph.edu/CPHP/Training/index.html>

Math Forum at Drexel <http://mathforum.org/>
Eisenhower National Clearinghouse <http://www.enc.org/weblinks/math/?ls=ho>
Stanford Encyclopedia of Philosophy* <http://plato.stanford.edu>
Access Excellence <http://www.accessexcellence.org/AE/>
Chemistry Collective, Carnegie Mellon University
http://ocw.usu.edu/Index/ECIndex_view
Creative Commons, Science Commons* <http://science.creativecommons.org/>
Digital Chemistry, University of California* <http://digitalchem.berkeley.edu/>
High School Human Genome Program <http://hshgp.genome.washington.edu/>
National Human Genome Institute <http://www.genome.gov/Education/>
National Science Digital Library <http://www.nsdlib.org>
Physics Educational Technology, University of Colorado**
<http://www.colorado.edu/physics/phet/>
Skyview <http://skyview.gsfc.nasa.gov/>
National Science Teachers Association, Learning Objects for Teacher Training** (in progress)

Country or Region Specific OER Initiatives:

African Virtual University** <http://www.avu.org/>
Ariadne (European Union) <http://www.ariadne-eu.org/>
BC Campus (Canada) <http://www.bccampus.ca/Site3.aspx>
Chinese Open Resources for Education* <http://www.core.org.cn/>
Discovery Channel, Global Education Partnership (Sub-Saharan Africa & Latin America)
<http://www.discoverygloaled.org/whoweare/onlineclips.html>
Edna Online (Australia) <http://www.edna.edu.au/edna/page1.html>
EducaNext (European Union) <http://www.educanext.org>
National Institute for Multimedia Education (Japan) <http://www.nime.ac.jp/>
NEPAD eSchools (Africa) <http://www.schoolnetafrica.net/index.php?id=864>
OpenSource OpenCourseware Prototype System (Taiwan) <http://www.twocw.net> for traditional Chinese
<http://www.cocw.net> for simplified Chinese
Paris Tech OpenCourseWare (France)
<http://www.polymedia.polytechnique.fr/Sommaire.cfm>
Universia (Spain & Portugal) <http://www.universia.net/>

Open Journals and Books:

Boston College's Third World Law Journal
<http://www.bc.edu/schools/law/lawreviews/thirdworld/>
First Monday <http://www.firstmonday.org>
Gutenberg Project <http://www.gutenberg.org>
Internet Public Library <http://www.ipl.org>
Making of America <http://www.hti.umich.edu/m/moagrp/>
Public Library of Science <http://www.plos.org>
Tufts University, The Perseus Digital Library <http://www.perseus.tufts.edu/>

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APPENDIX

Memorandum

Institutional Research and Planning

To: **Academic Senate Presidents and Chancellor Martha Kanter**
From: **Bob Barr**
Date: **April 18, 2006**
Re: **Findings of the Faculty Survey on Public Domain Learning Materials**

The attached set of tables and responses provide the findings of the Faculty Survey on Public Domain Learning Materials conducted online during March 2006.

The Sample

There were 140 faculty respondents to the survey of which 78 were full-time and 62 part-time. As there are 196 full-time Foothill and 305 De Anza faculty, the full-time response rate was 16%. The part-time response rate is estimated to be 7%. This is likely to be a biased sample not well representing the views of the entire faculty. The sample is likely biased toward those with knowledge of or interest in using public domain learning materials.

Key Findings

- 80% of the respondents were somewhat or very interested in using public domain learning materials in their classes.
- 12% chose not to complete the entire survey.
- Of 119 responding, 47% said they were aware of public domain learning materials in their field.
- 51 respondents provided their name and email address so that we could contact them regarding their experience or knowledge with public domain learning materials.
- Of 80 providing an assessment of public domain learning materials in their field, 61% judged them to be of very high or good quality while another 39% said they were of fair or low quality.
- 31% of 118 responding said they were using public domain learning materials in their classes.
- The disciplines/courses in which faculty are using public domain learning materials are: Admin of Justice, Anthropology, Astronomy, Biology, CIS, English1, ESL, Film & TV, Geology, History, Humanities, Library Sci, Japanese, Mandarin, Math, Music, Nanotech, Paralegal, PE, Psychology, Reading, Sociology, Special Ed, and Typography.
- Those reporting use of public domain learning materials in classes indicate their greatest use is of reference works, journal articles, and various type of images. Only 15 reported using either paper or Internet public domain textbooks. 14 reported using other fiction or non-fiction public domain books. 25 reported using some other type of public domain learning materials.
- Other public domain learning materials mentioned by respondents include: audio files, white papers, blogs, computer code, databases, interactive web modules, podcast lectures, SEC financial documents, PowerPoint files, and tutorials.
- Of the 52 responding about how costs are handled, 15% said copies are provided with district/college funds and 29% report that students make or buy their own copies. 56% report some other method.
- In indicating other methods of handling costs, most respondents refer to free Internet downloads and links to Internet material (which may not be in the public domain but nevertheless is available on the Internet). Where students download textual material, they bear the costs of printing, if printed. Some instructors mentioned non-public domain material they have purchased with their own funds.
- Of 116 responding, 74% say they are likely or very likely to use public domain learning materials in the near future.
- Of 113 responding, 47% say they are interested in helping the district produce public domain learning materials.
- Of the 69 responding to the open-end question about conditions which would be needed to contribute to producing public domain learning materials, the largest number, 19, mentioned stipends or release time. Part-time faculty indicated they had little time to devote to such projects. Many, at least 15, indicated participation

would depend on the amount of time, deadlines, what is being produced. At least 10 indicated an interest in contributing for intrinsic rewards such as discovering new teaching materials and reducing costs for students. Some suggested it depended upon the level of commitment of the district. Others indicated they were already producing or identifying learning materials, some of which may not be public domain materials.

- Of the 59 responding to the closed-end item regarding support or resources needed to contribute to producing public domain learning materials, 76% indicated a need for an FHDA web repository of public domain materials, 66% a workshop on the nature of public domain learning materials, and 51% a development team to work with. 42% would like training in the Etudes/Sakai course management system. There was also expressed need for understanding copyright issues and UC/CSU articulation issues.
- Of the 19 indicating some other form of support, several repeated “conditions” required like stipends or release time. Other suggestions included support for a home broadband connection, FHDA server space, online workshops, and multimedia and web design software.

Conclusion

At least among the respondents who completed the entire survey, there seems to be considerable interest in using, sharing, and even producing public domain learning materials. A third of the respondents noted they were already using public domain learning materials in their classes. As this sample does not represent the entire faculty, it cannot be concluded that a third of the faculty are using public domain learning materials though many are no doubt using Internet resources. Part-time faculty noted that they had little time for developing public domain learning materials despite some interest among these respondents. It should also be noted that many “free” learning materials, particularly those available on the Internet, are not necessarily in the public domain even though they are available to the public. Clearly, confusion exists among the respondents about the difference between available free material that is and is not in the public domain.

Some respondents noted the complexity of this issue and others noted that producing quality materials requires considerable time and energy, which for the most part, would require some form of compensation. Most of those commenting seem to suggest that the greatest use and potential of public domain learning materials is as a supplement to standard textbooks or other primary course material. A couple of comments seem to suggest that producing public domain textbooks would be a very difficult task.

**Survey on Public Domain Learning Materials
Findings, April 7, 2006**

Q1 Full or Part-time Faculty?

	Frequency	Percent
Full-time faculty	78	55.7
Part-time faculty	62	44.3
Total	140	100.0

Q2 Are you interested in using public domain learning materials in your classes?

	Frequency	Percent
No opinion	12	8.6
Not interested	15	10.7
Somewhat interested	61	43.6
Very interested	52	37.1
Total	140	100.0

Q3 Would you like to complete the remainder of the survey?

	Frequency	Percent
No	17	12.1
Yes	123	87.9
Total	140	100.0

Q4 Are you aware of public domain learning materials for teaching and learning in your field?

	Frequency	Percent
I am aware of such materials.	56	47.1
I am not aware of such materials.	63	52.9
Total	119	100.0

Q4_name If you are aware, may we have your name and email? (In case we need to contact you regarding your experience/knowledge on this issue.)

[Names/email addresses removed to protect privacy]

Q5 What is your assessment of the quality of public domain learning materials in your field?

	Frequency	Percent
Very high quality	17	21.3
Good quality	31	38.8
Fair quality	31	38.8
Low quality	1	1.3
Total	80	100.0

Q6 Are you currently using any public domain learning materials in your classes?

	Frequency	Percent
No	81	68.6
Yes	37	31.4
Total	118	100.0

Q6 - explain If Yes, are you currently using any public domain learning materials in your classes?

- Administration of Justice 01
- All 6 courses
- Anthro 1
- Astronomy 10A, Astronomy 10B, Astronomy 10L, Physics 12
- Biology 41 and Biology 45
- CIS 15A
- CIS068k - Python Programming
- CIS68C1 Linux/Unix Administration CIS68A Introduction to Linux /Unix
- CIS92a
- English 1A - Freshman Comp
- English 1A and 1B (College Writing), and 48 a/b/c (American Lit)
- ESL
- ESL 172
- EWRT 1B, 100B
- F/TV 2A: History of Cinema (1895-1950) F/TV 2B: History of Cinema (1950-Present) F/TV 1: Introduction to Film
- GEOL 10 extensive use for course including virtual textbook and materials adapted for laboratory. OCEN 10 Some use in discussion sessions.
- History 17B
- History 4C
- Human Sexuality
- Humanities 16, Arts Ideas and Values Arts 1A, Introduction to Visual Arts Arts 2A, Art History of the Ancient World (3 courses I teach regularly)
- I am a PT librarian at De Anza but have used public-domain materials for years. At DA I used such materials in ES 90, orientations and working with individual students. I have also public domain materials in Lib 244 at SJSU, Libr 15 at SJCC, LT65 at Foothill, and at other CC libraries and classes.
- Intro. to Shakespeare Children's Lit. Mythology and Folklore EWRT 1a
- Introduction to Unix/Linux Unix System Administration Unix Networking
- Japanese 4 Japanese 5 Japanese 6

- Mandarin 1,2,3,4,5,6
- Math 11, Math 1A, Math 1B, Math 1C
- Music 1 Intro to Music, Music 8 Intermediate Electronic Music, Music 51 Intro to Electronic Music
- Nanotechnology Bioinformatics
- Paralegal 92A Corporations
- PE-2 Beg/Int Karate
- PE 28A lifeguard training & 26 series swim classes--my website has links for students to read about safety factors, nutrition for swimmers, etc.
- PSYC 1
- Reading 100
- social psych general psych psychology of women developmental psych
- Sociology 1
- SPED 140 SPED 190
- Statistics
- Typography

Q7 If yes to #6, what type of public domain learning materials or teaching materials do you use in your classes? (Check all that apply.)

	Frequency
Paper textbooks	8
Textbooks available on the Internet	7
Non-fiction books	8
Fiction books	6
Journal and journal articles	24
Reference works/materials	30
Images, music, or movies	22
Other materials	25

Q7 – Other:

- audio and video files, courseware software
- Background information concerning biotechnologies provided by Biotech Companies (White Papers)
- blogs, wikis, and eportfolios
- compiler
- Computer program source code
- Data bases; materials shared by other faculty
- Data sets of various kinds and online laboratory modules, visualizations for labs, digital maps, etc.
- Exercises, labs, solutions, etc.
- grammar exercises
- I am aware of them, but do not use them in any directed manner.
- I am sure there are materials available that I do not know of and would like to know much more. I teach distance learning WebCT class with some material on Internet, some on publisher site, some in textbooks. For classroom based teaching: Currently, my largest use is to obtain electronic images in arts and humanities classes. Also current events/news articles relevant to archeology or arts/humanities topics. I have not found a complete replacement for textbook in public domain, but I believe that it could be done. But one major concern for classroom based learners (vs. distance learning): students who don't have EASY access to computer- they are not as computer savvy, it takes a lot more time for them to do ANYTHING requiring computer, and it is an obstacle for success. Tends to be an economic issue that affects mainly students of color. It could be exclusionary unless such students get a computer and use it regularly enough to be comfortable. Discomfort =

procrastination, undue burden of time, poor grades, late work, decreased motivation or enthusiasm, even more obstacles than they already face. Partial solution is to print everything in a reader but that does limit types of activity such students could be required to do (i.e., researching a very specific topic not adequately supported in library). Of course, if adequate public domain material replaced a large number of texts, student might then be able to afford a computer, perhaps with financial aid for computer loan.

- I don't currently use them, but I know that there are physics concepts in the form of virtual demos (movies that demonstrate the concepts). The nice thing about these is they are typically interactive, so you can make changes to the conditions and see how that effects the outcome.
- interactive web modules
- lectures available on podcasts
- Newspaper articles
- Note, I reference such materials. I teach accounting and as a CPA and member of the profession, there are vast materials available for supporting my teaching. This is my first semester and I have used these references sparingly.
- We do use the financial literacy information from SEC and publicly held company investor sites.
- online articles and short literary works, as well as online grammar/writing reference materials
- Online documentation, white papers
- plays and poems of Shakespeare myths and folktales children's nursery rhymes older essays
- PPT files / lectures public PDF articles / lectures
- Primary source documents and multimedia for history
- related web sites and web pages
- Some mail order publications from ERIC, and database publications from the government.
- textbook related websites
- Tutorials
- Video tapes purchased through PBS, The Discovery Channel or independent producers of works shown on PBS. Recommended reading list.
- Virtually any type of material that can be found on the Web.
- web pages
- What is public domain material???

Q8 If Yes to #6, how are the costs of using public domain learning or teaching materials you're your classes handled?

	Frequency	Percent
Copies are provided to students using college/district funds.	8	15.4
Students make or buy their own copies.	15	28.8
Other Please explain briefly:	29	55.8
Total	52	100.0

Q8 - Other Please explain briefly:

- Almost all of these materials are available online or in a digital form that is used in laboratory. This includes software and data for use in lab.
- beside textbooks and workbooks, all the materials are online and free.
- BOTH!
- Copies are returned by students after use
- either in their readers, which they buy, or through student materials fees when I make copies
- Either via links from my web sites or they are materials that I use in my classroom activities. While technically not public domain, I also make available certain materials that I have created without charge while retaining intellectual property rights to those materials.
- I don't limit myself only to public domain materials. I put links on my website. I distribute B&W handouts, but mostly text, not images. I limit printing because of budget and ask students to print from my website or other

sites. But for public domain, students need computer access to find, print information, even if I put it on my website for them. In my disciplines, B&W copies are adequate only as memory joggers but not for "electronic textbooks." Students and I must have good color images, which are available on the net. Price is exorbitant to buy digital images and time prohibitive to create my own collection for art history and humanities classes (thousands of images needed). Computer technology in classroom is not reliable enough to count on digital projections. So, I have not completely replaced textbooks and still use already existing 35mm slides in classroom.

- I link from my faculty website to material. Students can read it there and/or print copies.
- I only use material that can be downloaded by the student. In some cases, I download files for storage on the etudes website (giving the full URL as a reference) to insure availability of materials in case of website access problems.
- I show the video tapes that I have personally purchased from my own funds. I suggest books, video tapes, and/or web sites that I think will be beneficial.
- I use a lot of these materials to enhance my own knowledge, which in turn helps my instruction ability.
- I was only planning on using them during lecture.
- Images/Films are projected on a screen.
- It's all online
- Lecture supplement
- Most materials are accessed by the students through mail or internet. Web-based materials are linked from the class website. I have also ordered class sets of materials when they have been available for no cost.
- My coursework (most of it is original) is supplemented by images from museums, or from my personal collection of art from art journals. These images are provided as examples to the online classes and as supplementary material to other students currently enrolled in the same discipline that quarter. Images of previous student work (published with permission) is presented (as would happen in a face-to-face class), but the form taken for the web class is non-printable, very small PDF images. Students seeing slides of previous work would not be able to "take it away" with them, so I think should not be able to in an online course either.
- OHP
- Online only
- soft copy downloads
- Students access resources online.
- Students access the materials online so there is no cost.
- Students are provided the URL to access materials online, some material is included in class handouts that I generally print at home.
- students download it themselves
- Students examine or read online.
- There are no costs. I mostly use 'public' domain materials. In some cases, the only cost is that of duplication, which I charge to my division/department. Most of these materials are available on the web and I have web access in the classroom I use.
- There is generally no charge for these items.
- There is no cost to students. Rather, the access to online licensed databases and the access to the Web is paid for by the colleges.
- these materials are available online free of charge
- They use library books or free internet sources
- This survey is way too simplistic and really doesn't understand the real world of teaching. The whole effort is way too focused on a textbook model of public domain materials. That's not how most good teachers use these materials. These are resources on the web which one ADDS to a course which ALSO needs a good textbook.
- Trial downloads In class demos

Q9 How likely are you to use public domain learning materials in the near future?

	Frequency	Percent
Very likely	39	33.6
Likely	47	40.5
Neither likely nor unlikely	27	23.3
Not likely	3	2.6
Total	116	100.0

Q10 Are you interested in helping the district produce public domain learning materials for your classes or field?

	Frequency	Percent
No	60	53.1
Yes	53	46.9
Total	113	100.0

Q11 Under what conditions would you be willing to contribute to producing public domain learning or teaching materials?

- Again, this survey is too simplistic and the subject is complex and nuanced. Good teachers already know how to do this without any intervention from the district. We all have professional societies and other resources to help us. I already produce such materials and put them on the Web as appropriate through journals, professional societies, astronomy web sites, etc. There is no need for anyone in the administration or governance of Foothill to become involved
- Anything at my faculty website is already available to others. Some faculty at other colleges are already linking to my site for their students to learn from. (For example, the history of swimming webpage I wrote to enhance the PE 26 series has already had over 50,000 hits.) BUT most of what I teach is for Red Cross certification, and other materials/books/videos can not be substituted.
- Credit to me.
- finding research and publications in my area of interest, providing references
- for a stipend
- Hard copy
- HOW ABOUT A THIRD CHOICE IN #10?? POSSIBLY ? DEPENDS ON SEVERAL FACTORS, INCLUDING DEADLINES, TIME COMMITMENT, SIMILAR. S. H. Davidson Foothill BSS
- I'd be willing to contribute if it reduced the cost of materials for students.
- I'm not sure how to answer this question. I would be willing to help by contributing my expertise and some time and energy with the help or underwriting of such projects from other sources.
- I've been an adjunct faculty for 19 years. A full time permanent faculty position would be a sufficient condition for my contributions.
- I am a part-time instructor and do not have the time or a future that is predictable enough to engage in this sort of work. I think it's a great move, but at present I have to be more concerned with survival.
- I am a pragmatist: I would be interested if I believed that there was a real commitment on part of district, truly fair compensation (not part-time, inequitable pay schedule) and a goal of producing a genuine product that I would also be able to use in my own teaching. In addition to reducing textbook expenses for students, it could add more value and greater breadth and depth to a course, improve my teaching effectiveness, increase active learning and student interest.

- I am interested in learning more about such materials, but have near zero experience with finding such materials (unless asking students to view documents/articles on websites counts??) and therefore feel that I am very much in need of being informed and introduced to these materials myself before producing them for others.
- I am not completely sure what this would entail. My guess is that it would mean contacting authors and other sources to seek their permission etc. Also, this could include compiling material into some logical sequence.
- I am too busy to create my own materials. I would be glad to share my knowledge about existing sources
- I choose what materials.
- I do now and have for 8 years
- I don't feel that I have expertise in programming these physics demonstrations. If I was developing something for myself, I wouldn't mind outing a little extra effort into making it available to others.
- I don't know enough about it
- I don't really think that it is necessary in History -- there is just a TON of stuff out there already. What really needs to happen is to vet the sources and make an index of them for instructors.
- I guess this would depend upon time requirements, constraints, objectives, and related additional information.
- I have a full time job, so I would need to work on this outside of work hours. Also now I am preparing for teaching my first class and am creating new materials in ETUDES-NG, so could not work on this project until April at the earliest, July and after would work the best.
- I have already produced many learning modules, online resources, digital data sets, including a virtual textbook (an online course reader) for my Geology classes. I developed most of these resources under NSF grants including for the National Digital Science Library and would do so in the future.
- I have no context from which to draw. I don't know what "contribute to producing..." means re: time? energy? money? any type of resource...need more information before I can comment.
- I have no idea what would be involved.
- I have produced them (or the equivalent) for my own classes. I would also be interested in collaborating with faculty teams to create shared resources.
- I need more info regarding public domain and of course I like to be compensated for my time.
- I need more information to account for my support.
- I need more instruction in how to use these materials
- I produced my own materials for Biology 10 and for Anthropology 1 during my sabbaticals. Part-time instructors in the Biology Department often started out using my Bio 10 lab manual. I think all that is needed is more encouragement of other instructors to do the same via workshops and institutional "blessing" that it is OK to use in house materials rather than commercial sources.
- I teach full time at a high school, but I appreciate you trying to enhance our profession.
- I think it is a good idea, but only being part-time faculty I do not have the time to donate to this worthy cause.
- I will help in contributing quality, reusable material in the area of technology, project management and program management
- I would expect to get paid and have extra time to produce the materials. It takes more time and expertise than most people realize. I am not sure if the board is aware of the time commitment and the expertise involved.
- I would have to be paid for my time.
- I would like to learn more about it before further comment.
- I would need time--currently don't have any.
- I would need to learn more about the process.
- I would not be able to help produce such materials, as I am nearly overloaded as it is. Thanks, anyway.
- I would want to be paid for my time
- If I can do it online.
- If I got release time for development
- If I had a good deal more time available than I do.
- If I have IT supports, some guidelines, some compensations and better yet with other colleague's collaboration, I will love to do it.
- If I were paid. This sounds like a rape of our intellectual property.
- If release time/salary adjustment were given
- If there is released time available or a stipend. I might do it as a PDL project.
- It's a lot of work, If I have materials that are already complete, I don't mind sharing them in the public domain, but I don't have the time to make things just for that purpose. A course I designed and built has been adopted by the Sophia project and is available in the public domain for others to use.

- It would depend upon how much the district is willing to protect original teaching materials. Generic information, that's okay, I'm willing to participate, but information that takes years of creativity to generate and years of trial and error to perfect, no.
- Need release time or stipends
- No conditions. Glad to be able to expand and add to the resources which aid student learning and retention
- no special constraints
- Not sure if materials I have in mind fit topic of this survey, but I am interested in working with others to develop a video illustrating different (culturally based) communication styles. Such a video would be useful in Speech courses in Intercultural Communication and Interpersonal Communication, and might also be relevant to Anthropology courses and courses on interethnic relations and "grassroots democracy" type courses.
- Note that I am only a part-time, occasional employee of your district. Because I work in multiple colleges I, normally, do not have time to create materials for a specific district.
- release time or stipend
- Release time or financial compensation
- release time, stipend
- Release time/financial compensation
- stipend for developing materials
- The materials I have used have always been in conjunction with a central text - to replace that text with PDM would involve equitable material and content to meet the demands of the curriculum. Copyright, accessibility, storage area, etc would have to be considered. Not to mention - who would review and approve materials as being adequate to use as texts for courses.
- The materials/activities I use are mostly out of individual choice/preference. In the field of statistics, there are numerous applications. I can guarantee you that the applications I am interested in are very different from those of other faculty. Of course, the theoretical underpinnings remain of the underlying material remain constant, but that is what textbooks are for, in my view.
- There would have to be substantial monetary compensation - this is basically asking faculty to write an online textbook for which they will get no royalties!
- To the extent that I am doing it presently
- Unclear--do you mean write/produce public domain material or assist in gathering (making available) appropriate public domain materials specific to our department or division?
- Whatever I can do to be a part of it I would do. We need to get onboard
- Working with others to research materials.
- Would evaluate materials for psychology courses. Contribute if possible.
- Would have to be a negotiated load item.

Q11-Name If you are interested (in contributing), would you please provide your name?

[Names removed to protect privacy]

Q12 If you expressed interest in #10, what support or resources would you need? (Check all that apply.)

	Frequency	Percent of Total Responding
Total number responding to this item = 59		
A development team to work with	30	50.8
Workshop on copyright or intellectual property issues	26	44.1
Workshop on the nature, availability, and accessibility of public domain materials	39	66.1
A FHDA web site repository of public domain materials	45	76.3
Training in conjunction with Etudes/Sakai course management	25	42.4
Support in handling UC/CSU articulation concerns and related issues	21	35.6
Other support:	17	28.8

Q12-Other support:

- \$\$\$
- A broadband internet connection to my home.
- A staff card. So I can get a parking sticker. I did not get the staff card because I did not get any assignment (CIS)
- Additional information on how the materials would be available to students and others.
- Again, there is no need for the district to become involved, except to provide faculty with good computers and computer access that is not interrupted by spam and glitches.
- Currently I was unable to get server space to put my Virtual Textbook online at Foothill. It is hosted by Columbia University and mirrored at San Francisco State University.
- ESP THE UC/CSU ISSUE !! IS IT NOT "A TEAM "WITH WHICH" TO WORK??
- Funds.
- I am already using the Internet and the resources at hand on it, very extensively in my regular and online ETUDES classes. I would like help and guidance to develop on this and make it an integrated working system.
- I am certain there are other items I would require, however I am simply unaware of them at this time.
- I might have checked more of the above, if I were made aware of the potential scope and applications of such a project (i.e.: Training in conjunction with Etudes/Sakai course management).
- I would be interested in learning what other potentially useful materials are "out there." It would be good to get info from a team that could investigate whether use of our own materials or public domain materials would be acceptable with UC/CSU articulation. Verification that these materials would be OK might encourage instructors to move in this direction
- Nothing. I have been doing so for 8 years all on my own
- Online versions of the workshops
- Possibly, software for multimedia and/or web design. I would need development support for creating visuals/multimedia components, and some support in course design might be helpful, but not required. If Etudes is required CMS, I need the workshop. I now use WebCT. My concern is the exclusion of students of color at the low end of economic scale if public domain program is applied to classroom based learning (see concern identified above). If this would be (potentially) a brand new course, I would need support on articulation issues, but not if it is a re-creation of an existing course offering in my discipline. I am on dial up modem at home; I would need to investigate high speed options currently available in Santa Cruz mountains.
- release time
- stipend to compensate for time
- Time and money to get the job done.
- Video production materials and crew (could be partially a student project?)