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Open Educational Resources:
Building Knowledge Communities Worldwide

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The William and Flora Hewlett Foundation
Community Information Seminar, University of Michigan
October 24, 2008

Today's Changing Technology And Social Norms Are Creating New Opportunities...

Online access makes it easier than ever to reach people at home, at work and in remote locations
> Fact: Internet users globally have grown ~300% since 2000

Increasing bandwidth improves global capacity to access, create and personalize rich content
> Fact: Global broadband penetration increased 20% in 2008

Globally networked communities are becoming the norm for social and professional interactions
> Fact: Half of adults globally have made friends online

New collaboration tools for have been quickly adopted around the world
> Fact: Wikipedia is the 9th most popular website in the world

...But Global Education Spending Is Not Sufficient, Especially In Developing Countries

Insufficient funding for education leads to negative outcomes for all

- **Inadequate infrastructure**

- **Unfavorable teacher to student ratios**

- **Insufficient teacher compensation**

- **Poor teacher training**

- **Few opportunities for improving teaching practices**
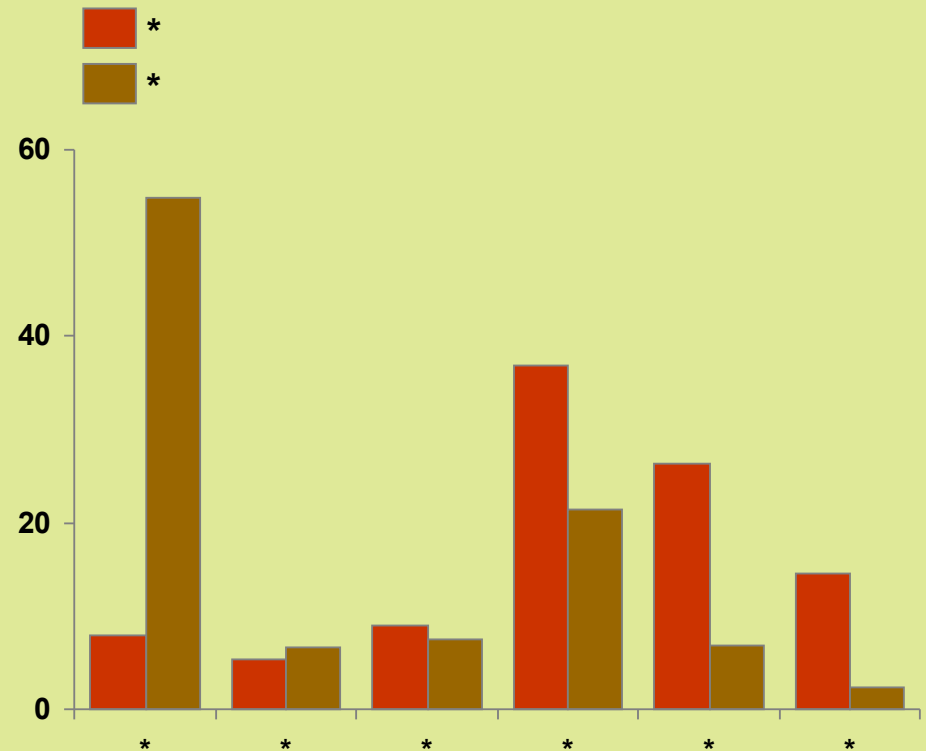
Did you know: 75 million children are out-of-school across the world
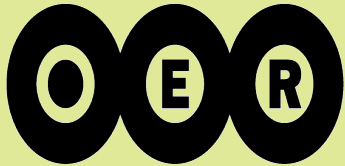
OPEN EDUCATIONAL RESOURCES

- Open, high quality digitized educational content, tools and communities

- Available anytime, anywhere for free

- Localizable and re-mixable

- Allows for collective improvement and feedback

OER Addresses The Opportunities And Challenges Of Today's World On Multiple Levels

OER

OPEN EDUCATIONAL RESOURCES

Opportunities

- Online access

- Increasing bandwidth

- Globally networked communities

- New collaboration tools

Economic
- Scale benefits
- Collaboration incentives
- New business models

Pedagogical
- Participatory learning
- Tailored instruction
- Parallel teacher support & training

Social
"Freedom is the expansion of the 'capabilities' of people to lead the kind of lives they value—and have reason to value."
~Amartya Sen, Nobel laureate

Challenges

- Inadequate education infrastructure

- Unfavorable teacher – student ratios

- Poor teacher training

- Insufficient teacher comp.

Defining Open Education Resources

What OER Is...

- Open high quality digitized educational content, tools and communities

- Available anytime, anywhere for free

- Localizable and re-mixable

- Allows for collective improvement and feedback

...And What OER Is Not

- A free sample of otherwise costly content

- Open content to a closed community

"Everything that is really great and inspiring is created by the individual who can labor in freedom." ~Albert Einstein

However, OER Is Not Simply Black And White
Various Steps Along The Open Continuum

Degree of openness

	CC license				
CC license	(=) ($) (↻)	($) (↻)	(i)	(PD)
Character-istics	• All rights reserved • Members only	• Some rights reserved; no derivatives or re-dist.	• Some rights reserved • Derivatives, re-dist, non-comm. use	• Some rights reserved • Derivatives, re-dist., comm. use	• Public domain
Examples	• BC Campus • PBS Kids • Hippo Campus • YouTube	• WGBH Teachers Domain	• MIT OCW • OpenLearn	• Wikipedia • Wikieducator	• (Some) Photos on Flickr • Project Gutenberg

A Huge Array Of OERs Exist Today
Across Different Populations Of Learners

K-12

Higher Education

Life-Long Learning

Teacher training

TESSA
Teacher Education in Sub-Saharan Africa

Video lectures

WGBH

Lesson plans

Curriki — Global Education & Learning Community

Courses

MITOPENCOURSEWARE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Courseware

Japan Opencourseware Consortium

Vietnam OpenCourseWare

Podcasts

CORE
China Open Resources for Education

Journals

Harvard University

Books

Google Book Search BETA

Images

OPEN Content Alliance

Applications

OLLi
Open Learning Language Initiative

Games

BBC i Open2.NET — The Open University
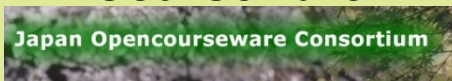
OERs Are Available Across The World

More K-12 Open Education Resources

OER	Description
MITE **NROC** **HippoCampus**	• Growing library of free, high-quality course content for students and faculty in high school and Advanced Placement courses
WikiEducator	• Planning education projects with free content • Development of free content on for e-learning • Networking on funding proposals developed as free content
TESSA	• Free teacher training resources to support school-based teacher education and training in sub-Saharan Africa

Curriki   **Scholastic**   **WGBH**

More Higher Education Open Education Resources

OER	Description
MIT	• Free lecture notes, exams and videos from more than 1,800 Massachusetts Institute of Technology undergrad and graduate courses
Open University UK	• Online distance learning university with no qualification or prior experience required • Open learning model where one learns at own pace • ~150,000 undergrads; ~30,000 post grads
CORE	• Promotes closer interaction and open sharing of educational resources between Chinese and international universities

Open Universiteit Nederland   **OpenLearn**   **Vietnam Open Courseware**

More Life-Long Learning Open Education Resources

OER

OER	Description
Google Books	• Free downloading of books without copyright protection, plus search function for all books, links to libraries for check-out, etc.
Open Content Alliance	• Consortium of cultural, technology, nonprofit, and governmental organizations from around the world building a permanent archive of digitized text and multimedia content
Creative Commons **Science Commons**	• Collaborative project designing strategies and tools for faster, more efficient web-enabled scientific research

Harvard University

**Open2.net**

MIT Open Courseware

MIT is the first major university to publish academic content for free

- **2000 – MIT faculty vote to pilot Open Courseware in order to use the internet to advance knowledge around the world**

- **2002 – 50 courses in three languages published**

- **2004 – MIT partners with other institutions to form more OCWs and adopts Creative Commons licenses**

- **2006 – The global Open Courseware Consortium meets for the first time**

Tremendous global adoption since launch in 2002

~1.6 MM unique users/month

Source: MIT OCW

41% 19% 21% 5% 8% 1% 5%
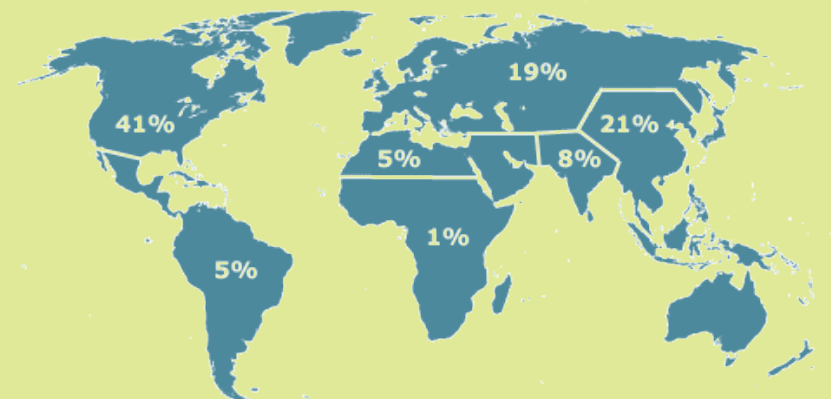
1,800 courses available
- 10 language translations, including:
  - Spanish
  - Portuguese
  - Chinese
  - French
  - German
  - Vietnamese
  - Ukrainian

User profile
- Self Learners (50%)
- Students (33%)
- Educators (17%)

Typical uses
- Personal knowledge (40%)
- Develop or plan a course of study (14%)

TESSA

The TESSA mission: cheaply and effectively improve teaching in Africa

- Consortium creating OERs and course design guidance for teachers working in Sub-Saharan African countries

- All materials are modular in format. Focus on classroom practices in key areas:
  - Literacy
  - Numeracy
  - Science
  - Social Studies
  - The Arts
  - Life Skills

- All materials licensed by Creative Commons – can be revised and re-shared by anyone

18 national and international universities already participating

Source: TESSA

Select your Country from the list below to access the TESSA materials

- Ghana
- Kenya
- Nigeria
- Rwanda
- South Africa
- Sudan
- Tanzania
- Uganda
- Zambia

Localized for different environments

Localization done by consortium partners

Communities of learners and contributors

Creative Commons

Organization founded on the belief that current copyright law is outdated

- **Non-profit started in 2001 by a collection of IP experts, scholars and media producers**

- **Released a set of copyright licenses in 2002 free for public use**

  - **Offer different variations of "some rights reserved" to protect rights of creators**

- **Developed metadata making license attribution information machine-readable**

~130MM licenses granted to date

CC licenses (MM)

Monterey Institute for Technology and Education
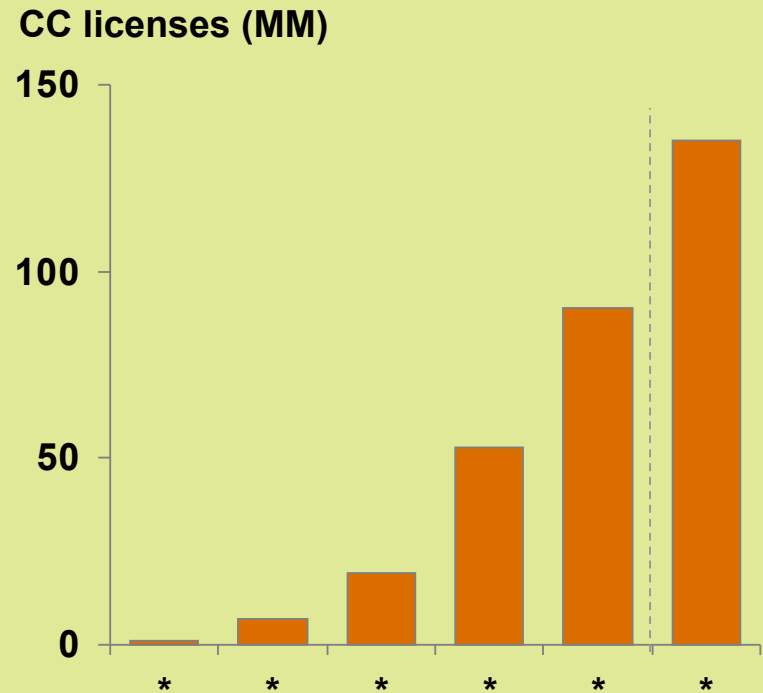
MITE: addressing the quality gap in online learning

- Founded in 2003 to address the lack of high-quality high school and higher education content available on the internet

- MITE is a non-profit entity which acts as a facilitator between:
  - Academia
  - Business
  - Government

- Now operating at ~75% of breakeven, even though content is free for all individuals

A growing collection of successful initiatives

MI MONTEREY INSTITUTE FOR TECHNOLOGY AND EDUCATION

MACARTHUR The John D. and Catherine T. MacArthur Foundation — MacArthur Foundation Series on Digital Media and Learning

NROC NATIONAL REPOSITORY of ONLINE COURSES

HippoCampus

- Many publications on the new social and learning paradigms today's youth experience through digital media

- More than 30 fully developed, modular online courses for college, AP and high school
- More than 50 member institutions, including
  - state departments of education
  - LA Unified School District
  - UC-Berkeley

Carnegie Mellon Open Learning Initiative

## Applying cognitive science to online learning

- Founded by cognitive scientists, experts in human computer interaction and seasoned Carnegie Mellon faculty

- All courses use a combination of these factors to facilitate learning
  - Cognitive tutors
  - Virtual laboratories
  - Group experiments
  - Simulations

- Effectiveness and usability studies are conducted and courses are optimized on a regular basis

Many ground-breaking courses developed

Statistics
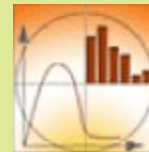
Chemistry
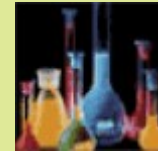
Empirical Research Methods

Computational Discrete Mathematics

Economics

Logic

Open University Of The United Kingdom
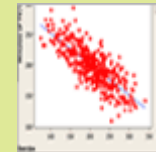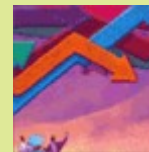
Open enrollment, open content university for all people

- Pioneered online "supported open learning"
  - Students learn at own pace, working on assignments and preparing for exams
  - Support from individual tutors and service staff at regional centers
- Learning materials, including printed course materials, set books, audio cassettes, video cassettes, and software are open and free
- 86% of instruction received "Excellent" rating from QAAHE
- Currently ~150,000 undergrads; ~30,000 post grads

Online course usage data suggest mission is being met

2005-2006 Open Learn data
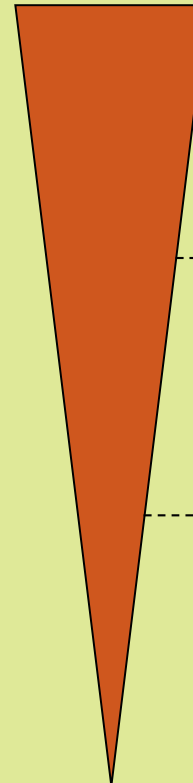
Usage
- 82% new to the OUUK
- Higher percentage of students with low socio-economic status

Course completion
- 60% complete opening course
- Higher percentage of black & minority students

Matriculation
- 44% register for OU programs
- Higher percentage of working adults seeking vocational training

Clarissa is a teen who uses online role play to socialize and improve her writing

| **Mini bio**	• High school student in a West Coast urban center • Working class family
How she uses OER	• Plays "A Land Far Away," a free, online, user monitored role play game • Plays with friends from school and meets new friends from around the world
How she learns through the game	• Participates in writing critiques with other players • Collaborating on a script with another user in Spain • Wrote 100 page screenplay based on the game for a school assignment
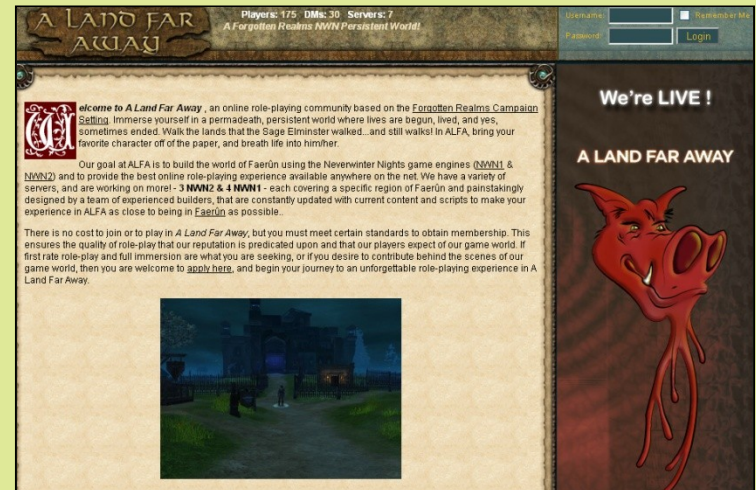
"It's something I can do to be creative and write and not have to be graded...You know how in school you're creative, but you're doing it for a grade so it doesn't really count?"

-Clarissa

OER Faces Two Kinds Of Ongoing Challenges

Technology and Development Challenges

- Content quality assurance and management

- Sustainability of OER organizations and business models

- Design for new learning paradigms

- Intellectual property and privacy issues

- Interoperability between different OERs
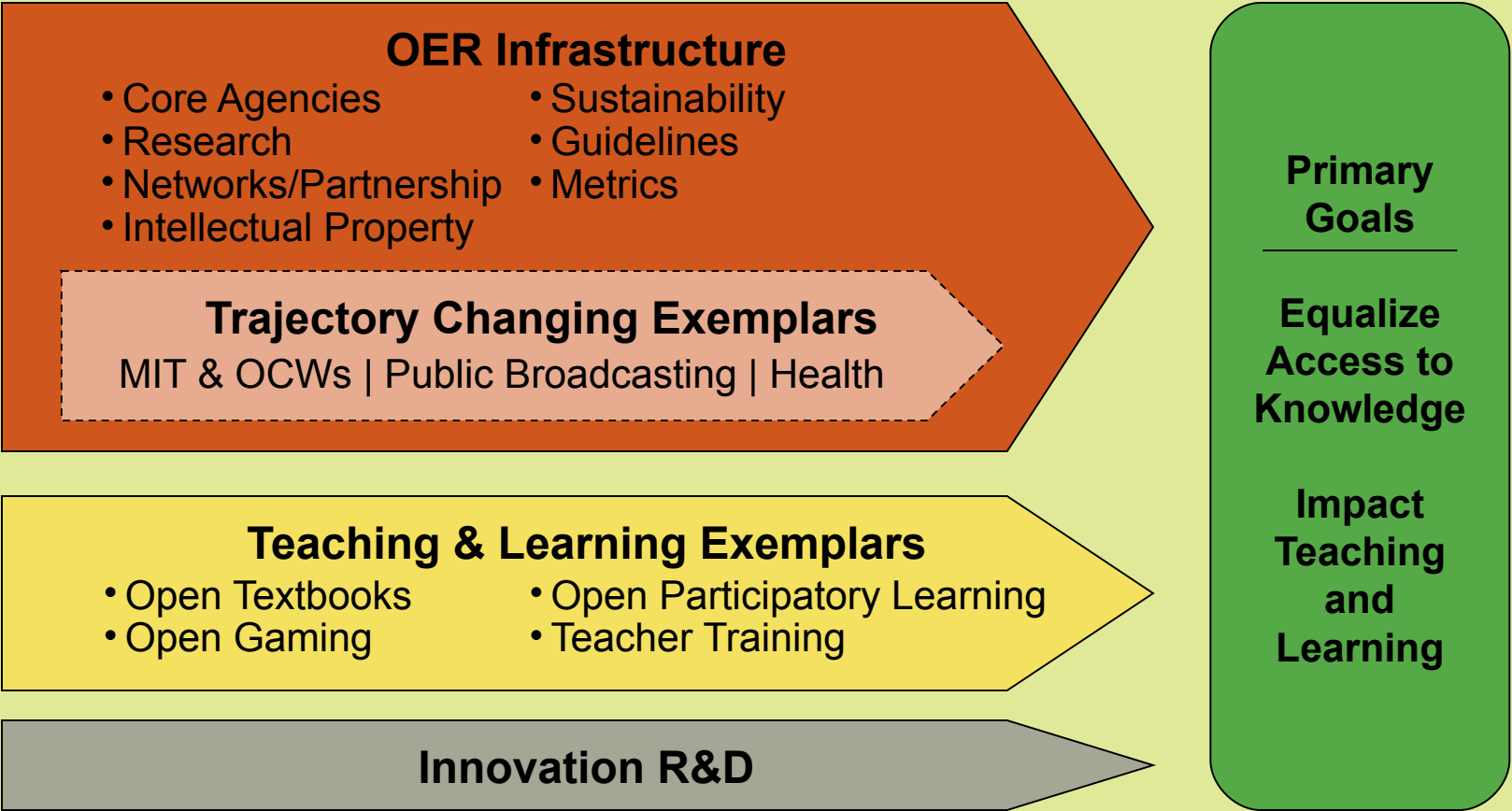
Practical and Pedagogical Challenges

- OER not a substitute for high quality teaching

- Open assessments not yet developed

- Measures for 21st Century skills not well developed

OER Supported By A Wide Variety Of Institutions

- Google

- Scholastic

- Open Society Institute and Soros Foundations Network

- Shuttleworth Foundation

- Yahoo!

- Bill and Melinda Gates Foundation

- IBM

- The John D. and Catherine T. MacArthur Foundation

- The William and Flora Hewlett Foundation

Many supporters with one common goal, but each has a unique OER investment strategy

Hewlett Foundation OER Strategy

OER Infrastructure

- Core Agencies
- Research
- Networks/Partnership
- Intellectual Property
- Sustainability
- Guidelines
- Metrics

Trajectory Changing Exemplars

MIT & OCWs | Public Broadcasting | Health

Teaching & Learning Exemplars

- Open Textbooks
- Open Gaming
- Open Participatory Learning
- Teacher Training

Innovation R&D

Primary Goals

Equalize Access to Knowledge

Impact Teaching and Learning

The Hewlett Foundation Plays A Variety Of Roles To Achieve Its Strategic Objectives In OER

Advocate   for general and specific OER causes around the world

Convener   of global OER talent and resources through its grantee network, funding partnerships and industry relationships

Thought Partner   for new and ongoing OER initiatives seeking to improve their impact in the space

Funder   of OER initiatives that advance the foundation's OER strategic goals

Source:
http://www.hewlett.org/AboutUs/News/Foundation+Newsletter/Gaming+Comes+of+Age+as+a+Learning+Tool.htm

Embedded Content & Language Training

Peer-to-Peer Teaching

Immersive, Engaging Learning

OER
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Foster pedagogical innovation and relevance

Core instructional content customizable for local use

Faster feedback loop for rapid improvement

More affordable for students at all levels
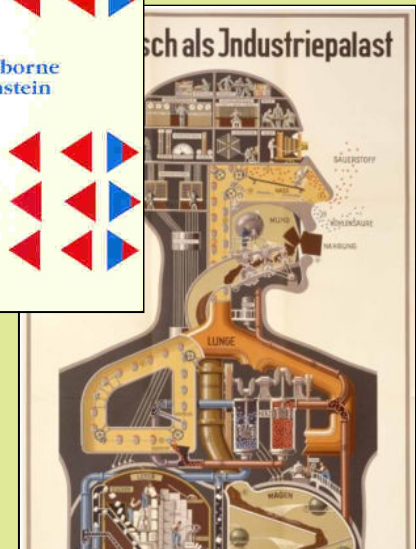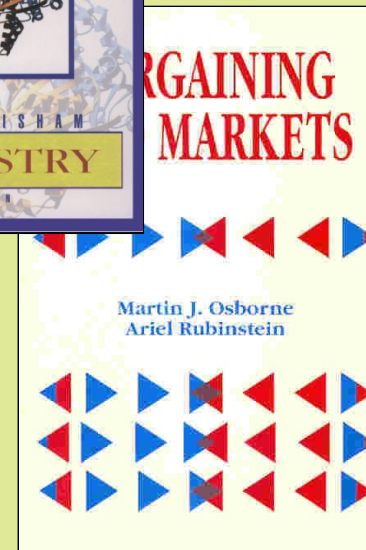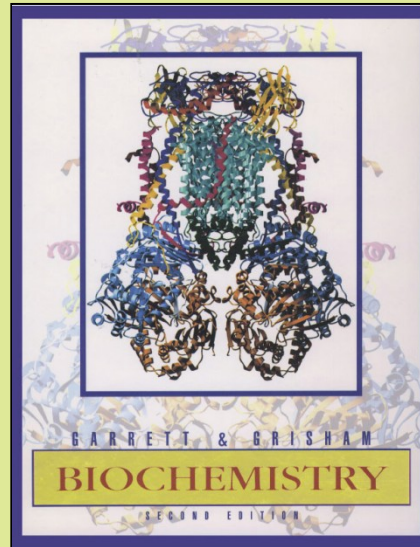
Biochemistry: http://web.virginia.edu/Heidi/home.htm
Bargaining and Markets: http://ww2.economics.utoronto.ca/osborne/bm/
Der Mensch als Industriepalast: http://www.nlm.nih.gov/exhibition/dreamanatomy/da_g_IV-A-01.html

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Enhance classroom learning with authentic, hands-on projects

Empower students as active participants, not just passive recipients

Expand future career horizons of students at an early age

Example: *Gulf of Maine Research Institute Vital Signs program*

HEALTH OER

OPEN EDUCATIONAL RESOURCES

Source: http://www.oerafrica.org/

Lessons From The OER Movement

Vision

- **Start with a <u>bold plan</u>**

- **Support the plan with an <u>iterative process</u> to operational-ize it quickly**

Ownership

- **Secure <u>institutional buy-in</u> up front**

- **Pursue <u>public and private partnerships</u> where able to**

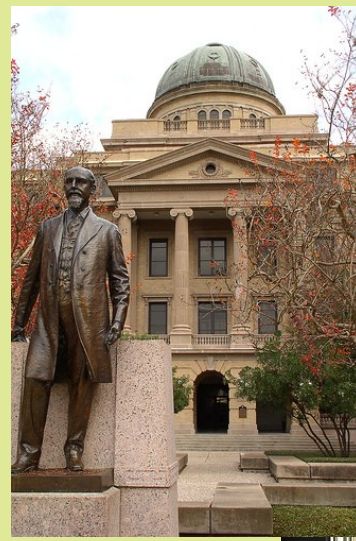- **<u>Involve all stakeholders</u> in planning and implementation**
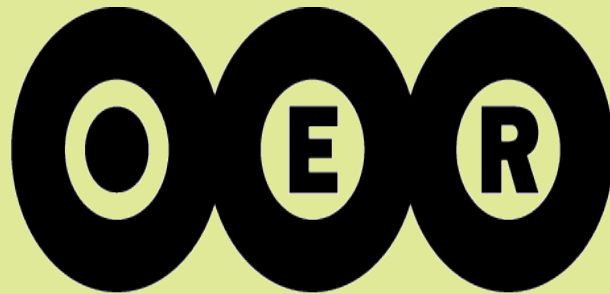
Design

- **<u>Demand driven</u>: Let targeted audiences drive design**

Too many on the outside looking in...   ...Too much potential to ignore

Boy at window: CC BY mathew_ramsey (flickr) http://creativecommons.org/licenses/by/2.0/deed.en
3 children: Source: USAID web site
Academic building: CC BY-NC olegrauke (flickr) http://creativecommons.org/licenses/by-nc/2.0/deed.en
Student learning: CC BY aldrin_muya (flickr) http://creativecommons.org/licenses/by/2.0/deed.en
Library: CC BY-NC mollyali (flickr) http://creativecommons.org/licenses/by-nc/2.0/deed.en

For More Information

OPEN EDUCATIONAL RESOURCES

The William and Flora Hewlett Foundation — www.hewlett.org

OER COMMONS — OPEN EDUCATIONAL RESOURCES — www.oercommons.org

creative commons — www.creativecommons.org

Sources

Pg 1
- **Internet world statistics http://www.internetworldstats.com/stats.htm**
- **Broadband statistics http://www.ispreview.co.uk/news/EkkEVVVpVFGxJjjYre.html**
- **Wikipedia data http://www.nielsen.com/media/toptens_internet.html**

Pg. 2
- **75 MM out of school children http://www.ungei.org/infobycountry/247_1804.html**