

**How the Learning World Became Flat:
Ten Knowledge Sharing and Technology
Trends Equalizing Access to Learning**

Curtis J. Bonk, Professor, Indiana University
President, SurveyShare
cjbonk@indiana.edu
<http://php.indiana.edu/~cjbonk>

<http://ella.slis.indiana.edu/~aenkim/iconping.html>

**Effects of interactive multimedia in
distance learning**

Giti Javidi and Ehsan Sheybani, 2004, In Proceedings of the IASTED International Conference WEB-BASED EDUCATION

"The advancement in technology is shaping every aspect of our life, including education. One decade ago, the Internet was not critical to education. However, now, it has become an integral part of learning process. Internet technology is having a dramatic effect on colleges and universities, producing what may be the most challenging period in the history of higher education."

Why Share?

Bonk, C. J. (2002, January). *Executive Summary of "Online teaching in an online world."* United States Distance Learning Association (USDLA).
http://www.usdla.org/html/journal/JAN02_issue/article02.html

Figure 11. Reasons Why Respondents Posted to the WLH or MERLOT*


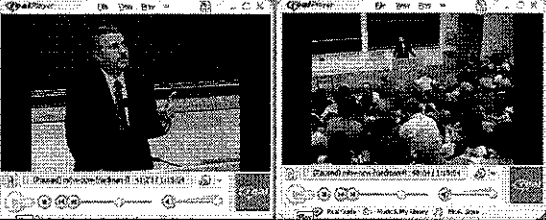
Reason	Percent of Respondents
Required	~10
Market Get	~15
Course sharing reports	~55
Share Theories or Guidelines	~35
Experiment	~15
Growth	~45
Fun	~15
Other	~15

Do You Share?

1. Who has shared music in an iPod or MP3?
2. Who has used collob software? (Google Groups, Yahoo Groups, Sharepoint)
3. Who has used online phone services such as Skype or Google Talk?
4. Who has assigned teams online?
5. Who has embedded international exchanges or expert guests?
6. Who has used MERLOT, Connexions, or the MIT open courses?
7. Who has used Wikipedia?

Most are Scared to Share!!!

■ Thomas Friedman, author of "The World if Flat":
 ■ Tools for collaboration are changing the world
 ■ <http://mitworld.mit.edu/video/266/>

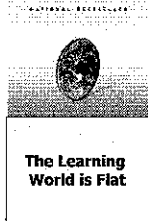
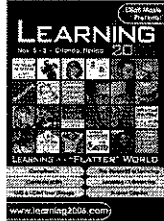



The Ten Forces that Flattened the World


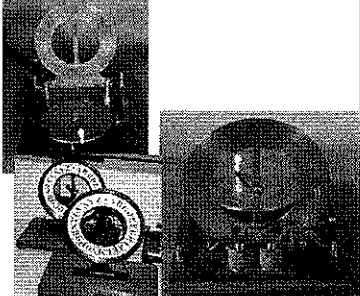
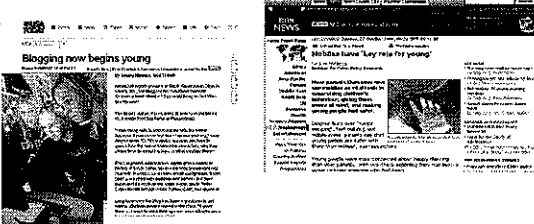


- 11/9/89: Berlin Wall came down
- 8/9/95: Netscape went public
- Work Flow Software (e.g., PayPal and eBay)
- Open-Sourcing (Self organizing collaborative communities; Mosaic, Apache, Wikipedia, Linux, Mozilla/Firefox,)
- Outsourcing (Y2K)
- Offshoring (e.g., China, Mexico, Thailand)
- Supply-Chaining (e.g., Walmart)
- In-sourcing (UPS fixing Toshiba laptops)
- In-forming (e.g., Google, Yahoo!, MSN Web Search)
- The Steroids: Digital, Mobile, Personal, and Virtual (e.g., wireless, file sharing, VoIP, video camera in phone)

The Learning World has become Flat!





Telegraph: Flattening the world in 1860

Eighth-grade students Tayler Bernholtz, left, Amy Lostron and Kelsey Cardiff check out a weblog discussion related to the Civil War historical-fiction book 'Guerrilla Season' At South Valley Junior High School in Liberty, Mo. (Blogging now begins young USA Today, By Ashley Bleimes, USA TODAY, November 15, 2006, 12D). http://www.usatoday.com/life/2006-11-14-blogs-education_x.htm



The Ten Forces that Flattened the Learning World



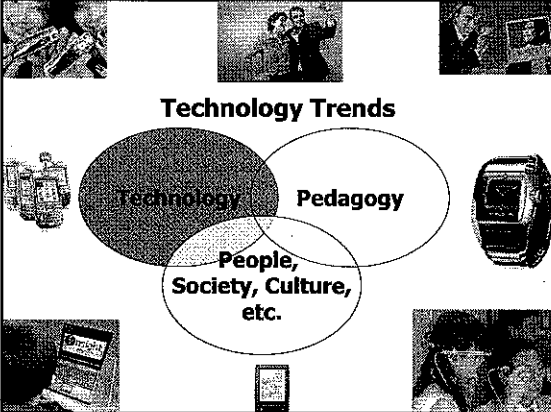
- Tools for Searching/Finding Media and Information Resources
- Availability of Quality Online and Blended Learning Environments
- Free and Open Source Software for Learning
- Open CourseWare (free content)
- Online Learning Object Repositories and Portals (shared content)
- Virtual Collaboration Software (synchronous and asynchronous)
- Online Massive Gaming, Simulations, and Virtual Worlds (e.g., Second Life)
- Learning Mobility and Portability (low-cost mobile devices+wireless communication)
- Personalized Learning Tools (Blogs, Podcasts, MySpace, Flickr, and RSS)
- Open Information Communities (Wikipedia, Slashdot, Digg)

Three Larger Trends

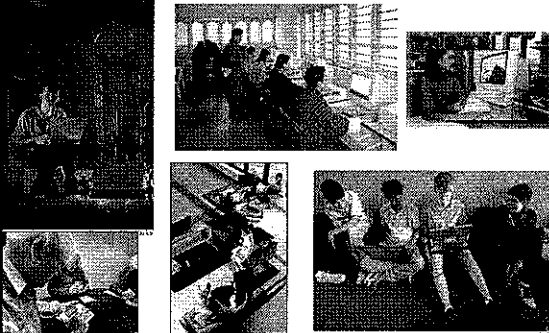
- The availability of tools and infrastructure for learning.
- The availability of free educational content and resources (OER—Open Educational Resources).
- A move towards a culture of open access to information, international collaboration, and global sharing.

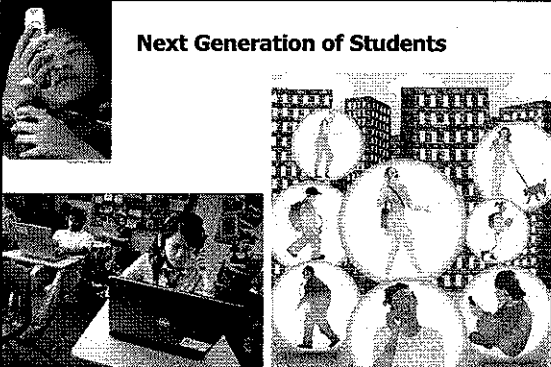
Technology Trends



Who is demanding access to learning?



Next Generation of Students



Tech Creates Bubble for Kids
Alejandro Gonzalez, USA TODAY, Updated 6/20/2006 10:34 AM ET


INFORMATION TECHNOLOGY



Yahoo News

Love me, love my blog," as Netorati couple-surf
BY SARA LEDWITH Thu Aug 3, 8:30 AM ET

- Nick Currie and his girlfriend Shizu Yuasa (R) surf the internet over breakfast in Tokyo in this handout photo. As the Internet evolves -- with its webcams, iPods, Instant Messaging, broadband, wi-fi and weblogs -- its image as a relationship-wrecker is changing. Now a sociable habit is emerging among the Netorati: couple-surfing. (Nick Currie/Handout/Reuters)
- "For my birthday, he upgraded my RAM and I thought it was incredibly romantic," writes Jess.

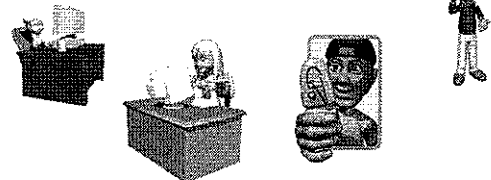


**Monday April 30, 2007, USA Today
Top 25 Things that Shaped the Internet**

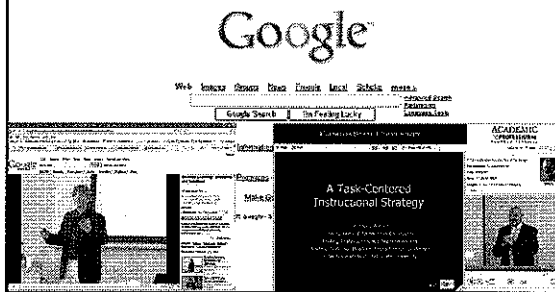
- 747 Million adults logged on in Jan, 2007
- 97 billion e-mails are sent each day
- Google had 500 million visitors in Dec, 2006
- USA: 1% broadband in 1998; 78% in 2007
- YouTube bought by Google for \$1.7 billion
- Adobe's Flash player on 98% of machines
- There are 75 million blogs!!!
- 19 million people play MMOG!
- 173 million personalized pages in MySpace

**The Ten Forces that
Flattened the World**

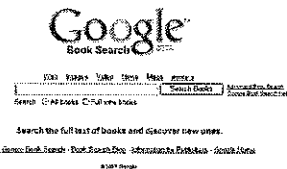
- 1. Tools for Searching/Finding
Media and Information
Resources: (e.g., Google,
Yahoo!)**



**Google and Other Search Engines
(Sergey Brin, Co-Founder)**

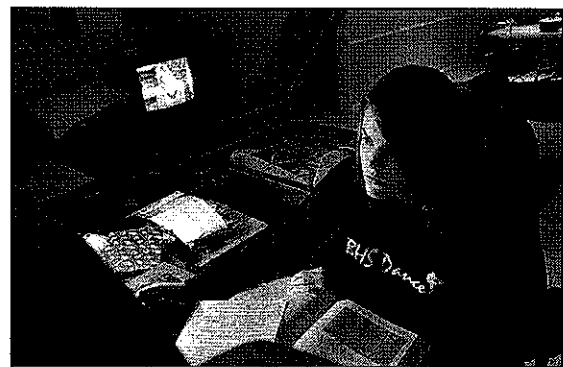
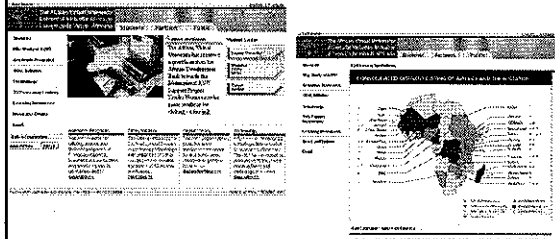


Google Book Project

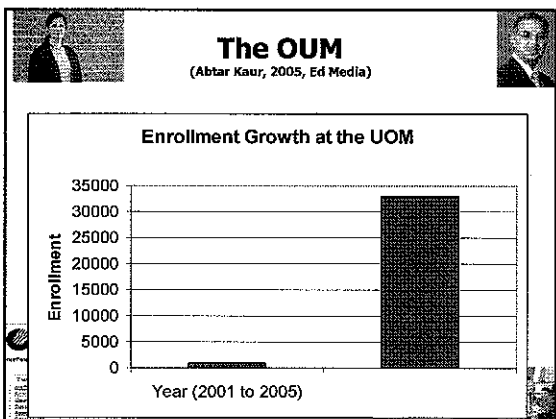
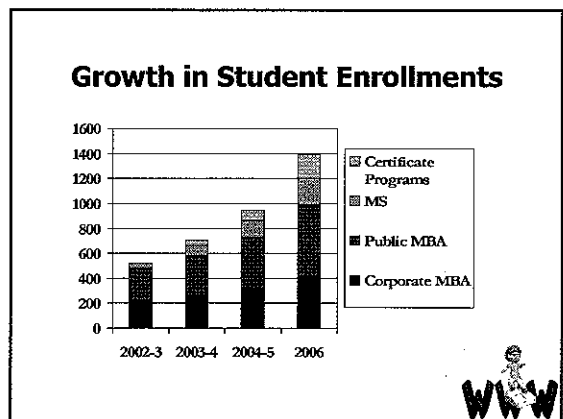
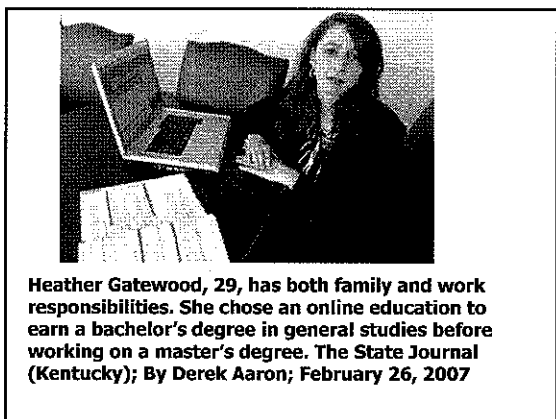
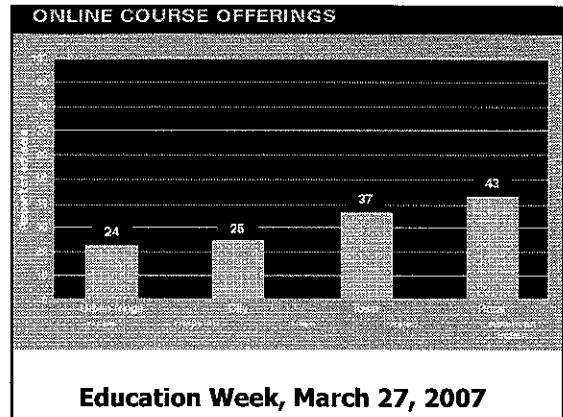
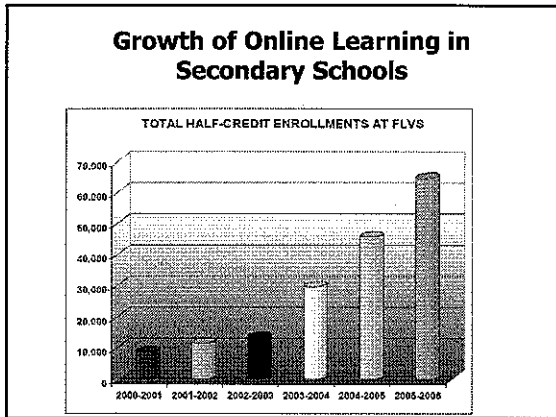


**The Ten Forces that
Flattened the World**

- 2. The Availability of Quality Online and
Blended Learning Environments**



Megan Casady, 17, sends instant messages, watches TV and listens to music while doing biology homework. By Katherine Frey -- The Washington Post, Feb. 26, 2007; Related Article: Teens Can Multitask, But What Are Costs?, page A01



The Ten Forces that Flattened the World

3. Free and Open Source Software for Learning

The Learning World is Flat

1. eduCommons



[See eduCommons in Action](#) [Download the Source Code](#) [Learn the Installation Instructions](#)

eduCommons is an OpenCourseWare Management System designed specifically to support OpenCourseWare projects like MIT OCW and UTAH OCW. eduCommons provides the functionality necessary to successfully create, and manage an open access collection, including a workflow process that steps users through uploading materials into a repository, making copyright clearance, cross-indexing materials with courses, to finally returning content, and first publication of the materials. With the first kind of eduCommons is designed to virtually align with other OCWs, the link and create use is actually closer to publishing the Collections - all resources are stored as individual learning objects in order to facilitate easy reuse downstream. eduCommons is an open source software available from [SourceForge](#).

eduCommons is generously funded by The William and Flora Hewlett Foundation and the National Science Foundation.

73327 registered Moodle users

Community Growth

Total Moodle.org users

Registered users total: 222310
New users in the past 24 hours: 824
Registered users accessed in past 24 hours: 2579
Registered users accessed in past month: 76889

The Ten Forces that Flattened the World

4. Open CourseWare (MIT OCW, Utah State, Japan, CORE, OOPS)



The Learning World is Flat

Tufts OpenCourseWare Project

Tufts OpenCourseWare

OCW@TUFTS.EDU

SEARCH

OCW@TUFTS.EDU

- [List all OCW](#)
- [SUBMIT](#)
- [LINKS](#)
- [FAQS and QUES](#)
- [HELP](#)
- [CONTACT](#)

IDP200 Pathophysiology of Infectious Diseases, Fall 2004/2005

COURSE FACULTY

Barbara Murray
Michael Bzoch
Shantel Gotsch
Linda Hu
Laura Kogerman
Drew O. Postyria
John Rhee
David Strydom
Chelcie Thoma
Mae Wylor

COURSE LENGTH
12 Hours

LEVEL
2nd Year

Japan OCW Alliance

OCW@TUFTS.EDU

12/2004 - IDP200 Pathophysiology of Infectious Diseases

Organ Transplant

Highlights of this Course

Organ transplant became clinically possible in 1955 along with development of organics like and immunosuppressants, which has seen significant medicine in many countries, and today some organ transplant programs exist and the number of transplantations has doubled over 1000 cases in 1994 after kidney, the largest and most popular one in the world, and liver and lung transplantation. Organ transplant and organ donation between and countries. A lot of useful information when this field. It is an area to explore a career in the world. More statistics and updates listed on each of these the world to learn the skills, knowledge, and laboratory and clinical work.

Instructor

Associate Prof. John...
Faculty...
Institution: MIT OCW

Faculty
MURRAY, BARBARA

Vietnam Fulbright Economics OCW

Chương trình Giảng dạy Kinh tế Fulbright

Phân tích kinh tế (EFT)

2005-2006

Trần Văn Khanh
Giảng viên EFT

Nguyễn Văn Thành
Giảng viên EFT

Nguyễn Văn Hùng
Giảng viên EFT

Trần Văn Dũng
Giảng viên EFT

Trần Văn Dũng
Giảng viên EFT

Trần Văn Dũng
Giảng viên EFT

Trần Văn Dũng
Giảng viên EFT

Trần Văn Dũng
Giảng viên EFT

6

Open University of UK

The Open University (OU) is making its award-winning resources available to the rest of the world to use. The OU offers free learning materials to anyone who wants to use them. The OU is a leading provider of open courseware, and its resources are available to anyone who wants to use them. The OU is a leading provider of open courseware, and its resources are available to anyone who wants to use them.

USU OpenCourseWare Project

Biochemical Engineering
 This course is designed to provide a comprehensive understanding of the principles and practice of biochemical engineering. The course covers the design and operation of bioprocesses, from the selection of microorganisms to the design of bioreactors and downstream processing. The course is designed to provide a comprehensive understanding of the principles and practice of biochemical engineering.

Open Source Courseware

SHARE
 The Open Source Courseware project is a collaborative effort to create and share high-quality educational resources. We invite you to share your own course materials, including lecture notes, assignments, and exams. By sharing your resources, you can help improve the quality of education for everyone. The Open Source Courseware project is a collaborative effort to create and share high-quality educational resources.

Per David Wiley, Utah State University (October 2005)

"This is a message that should probably get out, also - not only is this movement worldwide and gaining momentum every day, it is also becoming a key part of international strategy to achieve equitable access to education for people everywhere."

**John Dehlin
Utah State University**

"If you think about the tangible, practical, human value some of these courses could have in the world, particularly the 3rd world....it can get quite exciting (to me at least)."

CORE (China Open Resources for Education), OCW Mirror Site, China

CORE
 The CORE project is a collaborative effort to create and share high-quality educational resources for students in China. The project includes a wide range of course materials, including lecture notes, assignments, and exams. The CORE project is a collaborative effort to create and share high-quality educational resources for students in China.



OOPS! OpenSource OpenCourseware Prototype System
The Foundation of Fantasy Culture and Arts

What's their Beliefs? (Chu, Jan 1, 2007)

- Collective Minds is better than a single genius translator.
- Perfect Translation doesn't exist.
- 2,012 Volunteer translators
1,125 courses adopted
639 courses near completion
(level 1)
- 126 courses already finished

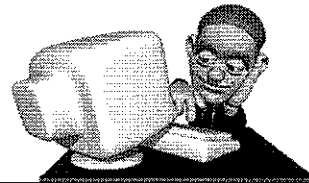


Lucifer Chu, Chairman and
Janitor of OOPS, Taiwan

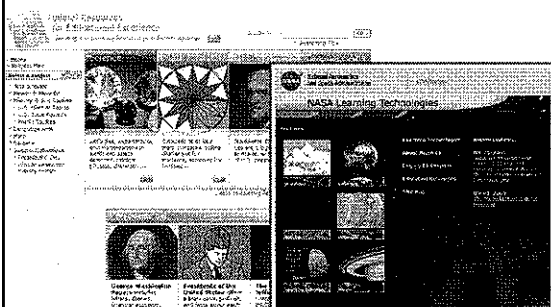


The Ten Forces that Flattened the World

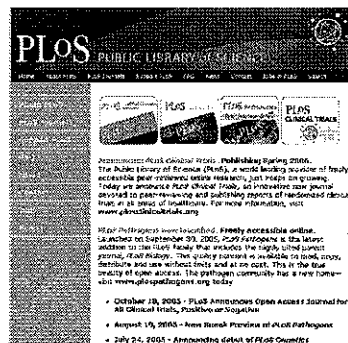
5. Online Learning Object Repositories and Portals (shared content)



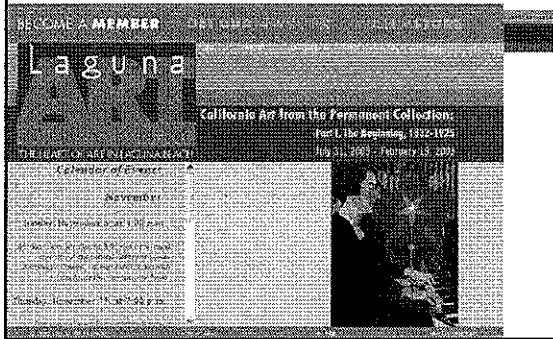
Free Government Resources!



Public Library of Science



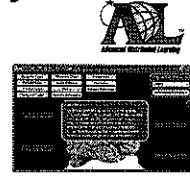
Museum of Online Museums



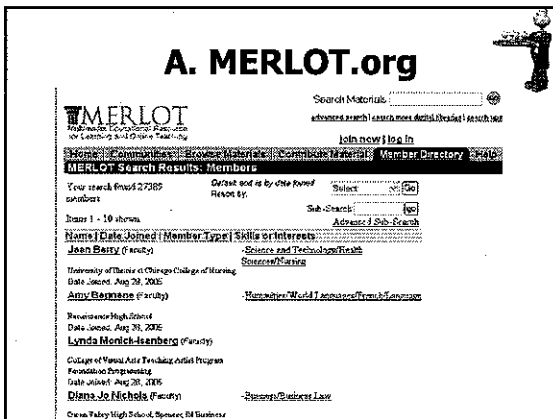
Trend 5, Part 2: Reusable Content Objects

- "Learning Objects are small or large resources that can be used to provide a learning experience. These assets can be lessons, video clips, images, or even people. The Learning Objects can represent tiny "chunks" of knowledge, or they can be whole courses."

Claude Ostyn, Click2Learn



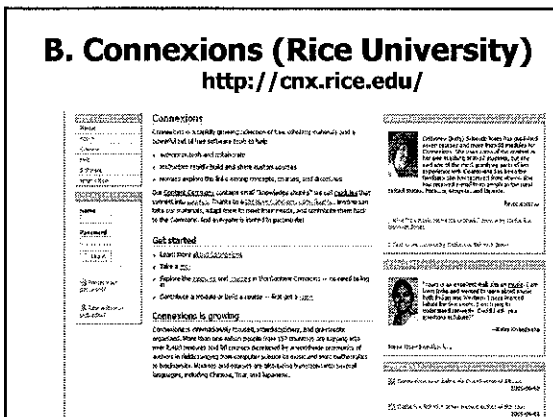
A. MERLOT.org



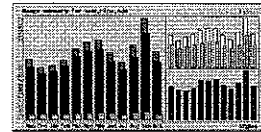
MERLOT People Metrics (Gerald Hanley, October, 2005)

MEMBERS	Birthyear 2001	Last Year 2004	This Year 2005
Students	706	3,652	5,010
Faculty	2,864	11,563	14,754
Staff	736	2,522	3,122
Administrators	-	280	746
Librarians	-	146	280
Other	421	1,867	2,341
TOTAL # of Members	4,727	20,030 453 per month	26,253 712 per month

B. Connexions (Rice University) <http://cnx.rice.edu/>



<http://cnx.rice.edu:8080/stats>
Sept 2005 had "14.4 million hits representing about 1 million page views by about 430,000 folks from 157 countries." growing at a rate of about 1 million hits per month.

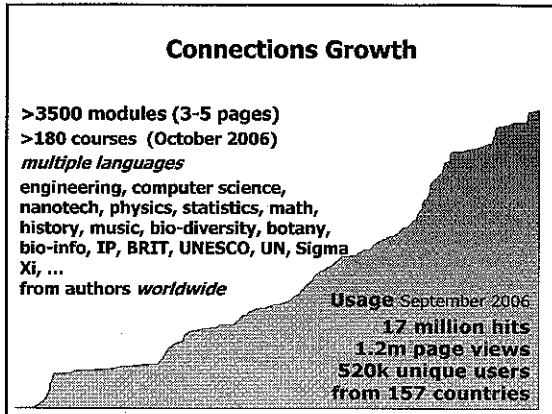


Month	Hits	Page Views	Unique Visitors
Jan	1,000,000	500,000	100,000
Feb	1,200,000	600,000	120,000
Mar	1,400,000	700,000	140,000
Apr	1,600,000	800,000	160,000
May	1,800,000	900,000	180,000
Jun	2,000,000	1,000,000	200,000
Jul	2,200,000	1,100,000	220,000
Aug	2,400,000	1,200,000	240,000
Sept	14,400,000	1,000,000	430,000

Connections Growth

>3500 modules (3-5 pages)
 >180 courses (October 2006)
 multiple languages
 engineering, computer science,
 nanotech, physics, statistics, math,
 history, music, bio-diversity, botany,
 bio-info, IP, BRIT, UNESCO, UN, Sigma
 Xi, ...
 from authors worldwide

Usage September 2006
 17 million hits
 1.2m page views
 520k unique users
 from 157 countries



C. JORUM (from UK)

collections

Welcome to JISC Collections

JISC Collections Portfolio of Online Resources

- Arts & Humanities
- Health & Life Sciences
- Science, Engineering & Technology
- Social Sciences
- Multidisciplinary Resources (including Encyclopaedias and Reference Titles)

Jurom Workflow

Details of the JORUM Workflow 0.8 workflow

Stages in workflow

Processes

Published after contribute stage

D. Global Education and Learning Community (GELC) (Kirkpatrick, Dec 22, 2006, CNN Money)

- The Global Education and Learning Community (GELC) aims to bring the principles of open source to education. Scott McNealy, former CEO of Sun Microsystems, is working to create a free universal curriculum from Kindergarten to 12th grade in every major subject. Any educator/researcher can contribute and it will be in any language.



E. Google School Resources such as Google Docs and Spreadsheets, an open alternative to Microsoft's Word and Excel

Google enrolls teachers in online software crusade

Dec 3, 2006, USA Today
 Michael Liedtke, Associated Press
 Google enrolls teachers to spread work online software crusade
 Palo Alto High School journalism teacher Esther Wojcicki helps student Allison Wyndham at a computer during journalism class in Palo Alto, Calif. Wojcicki is helping Google bring its online suite of software applications to classrooms across the country

F. National Repository for Online Courses (NROC) Commons

15.781 Advanced Managerial Communication, Spring 2004

Course Description

Highlights of this Course

The Ten Forces that Flattened the World

6. Virtual Collaboration Software (async and sync)

The Learning World is Flat

Skype says it is used by 136 million people worldwide

AT&T THE ECONOMIST DECEMBER 8, 2006

The Ten Forces that Flattened the World

7. Online Massive Gaming, Simulations, and Virtual Worlds

The Learning World is Flat

Virtual Worlds/Virtual Reality/MMOG

Virtual gaming

Online games are one of the many ways the Web has changed the way young people socialize and entertain themselves.

Percentage of visitors and users to game Web sites by age, September 2004

Age Group	Percentage
12-17	10.8%
18-24	13.2%
25-34	17.9%
35-44	20.3%
45-54	19%
55-64	8.4%
65+	0%
Not Spec	9.9%

SOURCE: ComScore Media Matrix AP

By Daniel Terdiman, CNET News.com
October 18, 2006, 4:00 AM PDT

When Linden Lab CEO Philip Rosedale (right) spoke to CNET News.com reporter Daniel Terdiman at CNET's "Second Life" headquarters this week, the auditorium was filled with almost all the visitors it could handle.

The Ten Forces that Flattened the World

8. Learning Mobility and Portability (low cost wireless devices)

The Learning World is Flat

\$100 Laptop

Sci-Tech
Features

A revolution in a laptop
By Greg Norman

After an amazing week-long project at the CM1, the new laptop is designed to be kid-friendly

The CM1: Taking technology to the developing world
A revolution in a laptop
By Greg Norman
Sunday 13 August 2006, 18:49
Makka Time, 15:49 GMT

OLPC aims to turn the tide of urban poverty

Computers for Peace By Grace Rubenstein GLEF

Fold-up antennas let OK laptops link with others up to 1/3 of a mile away and share an Internet connection.

Screen swivels, closes, or lies flat for use as tablet, e-book, or game machine.

Using a Wi-Fi connection, groups of children can do activities together, such as share photos or compose and perform music.

Super high-definition, 7.5 in.-diagonal screen is easily visible in daylight; designed for outdoor use.

Rugged keyboard resists dust and dirt and will be configured for the local language.

TIMES ON LINE
The \$100 laptop to change the world

Computers for Peace By Grace Rubenstein GLEF

- Drop a laptop computer into the hands of a child in a remote Chinese village, and Nicholas Negroponte predicts a cascade of results will unfold: The child will encounter new knowledge and ways to express herself through images, words, and sounds. She may help her parents find markets for their products in other cities via cheap satellite Internet -- or even develop a business plan herself. One family's growing prosperity will lift the village's fortunes and expand opportunities for their neighbors.

Digital Books

By Kim Rahn, March 7, 2007, Digital Textbook to Debut Next Year, The Korea Times

- Students will be able to interact with teachers regardless of time and space and study according to their ability through computers as the nation plans to adopt the digital textbook.
- provides the multi-functionality of textbook, workbook, exercise book and dictionary.
- The digital textbook...can go beyond conventional paper textbooks by using such features as video clips, animation and virtual reality.

Wireless Technology

Handheld Computing

Creating the Next-Gen Enterprise

DePauw University

The Ten Forces that Flattened the World

9. Personalized Learning Tools (Blogs, Podcasts, MySpace, Flickr, RSS, etc.)



Podcast Questions

1. Who has listened to a podcast?
2. Who listens to a certain podcast on a regular basis?
3. Who has created a podcast?
4. Who has created a vodcast?
5. Who thinks podcasting is simply more talking heads?



One of Michelle Tanner's deaf students at Gerald Wright Elementary holds an iPod and watches a video of her signing the week's vocabulary words. The iPods were purchased with a grant from Qwest.

Classrooms go high-tech. By Erin Stewart, Deseret Morning News, March 6, 2007

Learning with iPods (Campus Technology, Dec, 2006)



Georgia College & State University, The Department of Music and Theatre, which had foreign language speakers come in to do recordings that are helping the school's chorus. Learners singing in Korean, Portuguese, and many other languages, "Now we can listen to the diction, and make sure that we're pronouncing everything correctly."



Student Podcast

"Just the word 'podcast' scares a lot of teachers away," Ms. Schrock said. "There are a lot of misconceptions."

"All you need is a computer, access to the Internet and a microphone that you can buy at Toys 'R' Us," Mr. Warlick said. "I listen to podcasts on my computer." (NY Times, Jan 25, 2006)



Language Learning (ChinesePod—learn Mandarin)

Vlogging (Video Blogging) & e.g., Andy Calvin's Waste of Bandwidth

Online Photos, e.g., FLICKR (Inc. Magazine, December 2006)

Social Networking Software

- Classmates: <http://www.classmates.com/>
- Facebook: <http://www.facebook.com/>
- Friendster: <http://www.friendster.com/>
- Friendzy: <http://www.friendzy.com/>
- MySpace: <http://www.myspace.com/>
- Orkut: <https://www.orkut.com/>
- Tribes: <http://www.tribe.net/>
- YouTube: <http://www.youtube.com/>


Social Networking Software (Web 2.0)

The Ten Forces that Flattened the World

10. Open Information Communities (e.g., Wikipedia, YouTube)

YouTubers to get ad money share

Open Source Journal


 The International Journal of Open Source in Education

[Home](#)
[About](#)
[Login](#)
[Register](#)
[Search](#)
[Contact](#)
[Admin](#)

International Journal of Open Source in Education

INTERNATIONAL JOURNAL OF OPEN SOURCE IN EDUCATION

The International Journal of Open Source in Education (IOSSE) is an e-journal, with free and open access, that focuses on research and practice in the use of open source software, hardware, standards, and free content.

IOSSE includes an open, web-based journal for new ideas of thought and writing dedicated to clearly explore how Open Source, Open Standards and Open Content to be integrated with or even control and affect the future of education. It is an international journal for practitioners and design leaders who have deep interest in the advancement, better practices or curricula about the "openness" of resources.

The principal and its review liability publications published in the journal are freely accessible by worldwide audience. IOSSE is a free and open access journal that academic research, but it also caters to the knowledge of public and available from various related sources. Opening up the journal for each issue, among the publications they include the following:

- research reports, case studies or articles
- essays, articles, reviews and reviews (including of software and management) review or commentaries
- research proposals or on-going research activities
- working papers, proposals





Open Source and Open Educational Resources Conferences

O'REILLY OSCON OPEN SOURCE CONVENTION
JULY 21-23, 2004 - PORTLAND, OREGON

OSCON 2006. Opening Innovation

In the decade since the first Open Source Conference, OSCON has become a leading force for the open source community to gather together and share ideas. The conference is a place for developers, software designers, and users to come together to share their passion for open source. The conference is a place for developers, software designers, and users to come together to share their passion for open source. The conference is a place for developers, software designers, and users to come together to share their passion for open source.

Featured Speakers Include:

Autodesk

green

IBM

hp

Comparison of Sharing Sites: MERLOT, Connexions, CAREO, OCW, CORE, OOPS Grace Lin, Univ of Houston, 2005

- **Goals:** Link people, share knowledge, access resources, searchable database
- **Funding:** fully, partial, none
- **Audience:** higher education, students, teachers
- **Content contributors:** faculty, volunteers




Sharing Questions (today)

- For what purpose will people share?
- Who will continue to maintain or update such sites?
- Will online sharing become expected of all faculty members around the planet?
- How will copyright issues be addressed?
- What happens when one did not mean to share his or her course contents or ideas, or, at least, not as widely?
- How will such learning objects of today be viewed in 100 or 200 years?

**Quote Continued...
A Final Quote:**
It's a long, long road...
With many a winding turn.
That leads us to who knows where?...


It's a long, long road
From which there is no return
While we're on the way to there
Why not share

(The Hollies, 1969; He Ain't Heavy, He's My Brother; B. Scott - B. Russell)

Computers for Peace; By Grace Rubenstein; GLEF, Interview with Nicholas Negroponte, MIT

- In an ideal world, what is your single greatest hope for this project?
- A three-step hope: World peace *through* the elimination of poverty *through* education *through* learning. Education is the goal; learning is the means. A lot of learning can happen without teaching. We're banking on that.



The Learning is Flat! The End!!!

OOPS always dating: Sincerely, Lady CHUMMING@OOPS Ltd. 0116 234

The End...Remember

It's Over...

Poll: Ok, then, who wants more???

- A. Yes
- B. No
- C. Not sure

Sorry...it really is the end!!!

Your skeletal muscles maximum burn rate is double that of your brain. Think about it.