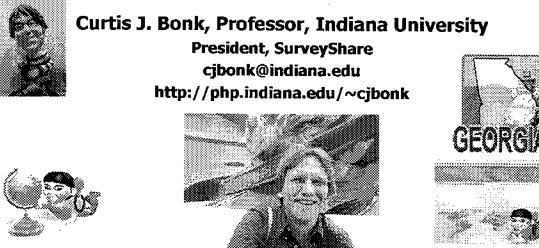



Wandering Through the Wonders of the Web 2.0: Emerging Technologies and Innovative Activities of for the 21st Century

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





Schools, Teachers, and Students of the 1880s



I'm a librarian




Technology of the 1980s



Radio Shack TRS-80 Model III	
Introduced:	July 1980
Price:	US \$699 base model US \$2495 w/ 32K, dual drives.
CPU:	Zilog Z-80, 2.03 MHz
RAM:	4K, 48K max.
Ports:	Cassette tape, expansion, serial
Display:	12-inch BW monitor: 84 X 16 text
Storage:	0, 1, or 2 internal 170K floppy drives External cassette @ 500 / 1500 baud
OS:	BASIC in ROM, TRS-DOS on disk

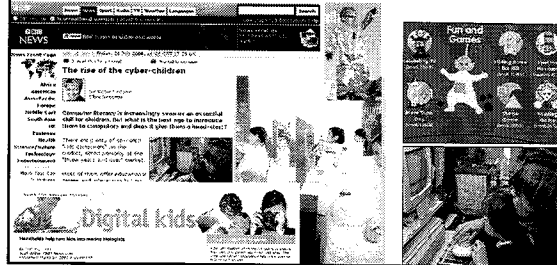
Technologies of the 2000's



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

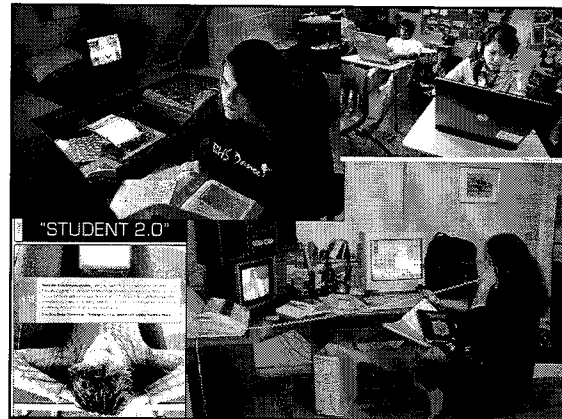
- 747 Million adults logged on in Jan, 2007
- 97 billion e-mails are sent each day
- Google had 500 million visitors in Dec, 2006
- USA: 1% broadband in 1998; 78% in 2007
- YouTube bought by Google for \$1.7 billion
- Adobe's Flash player on 98% of machines
- There are 75 million blogs!!!
- 19 million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

**Poll #1:
Raise your hands if you are a digital native
(grew up with a computer at home).**



Next Generation of Students

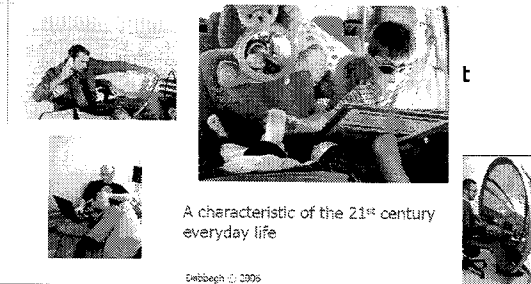
Tech Creates Bubble for Kids
Alejandro Gonzalez, USA TODAY, Updated 6/20/2006 10:34 AM ET

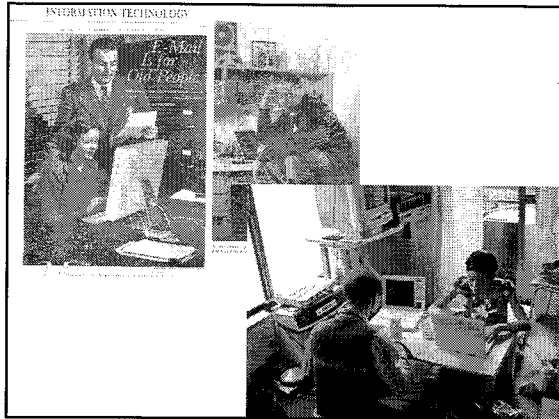


Neomillennial Learning Styles
Planning for Neomillennial Learning Styles: Implications for Investments in Technology and Faculty
Chris Dede, Harvard University, Educause, 2005

- Fluency in multiple media--value all types of communication, activities, experiences, not a single best medium
- Actively seek, collect, and synthesize experiences, rather than absorb a single best source
- Active learning and collective reflection
- Non-linear and associated webs of learning
- Co-design of learning experiences for individual needs and preferences not pre-customized

Simulation: Xer
Multitasking





Bonk's Addiction Q'er

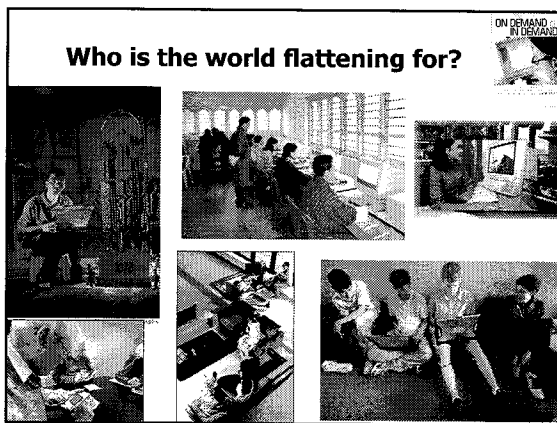
1. Who has 2 or more cell phones with Internet access?
2. Who has 2 or more laptop computers with wireless connections?
3. Who is on email in the morning? At noon? Who does it at night?
4. Who suffers from nervous tension when you cannot get on email?
5. Who is on the Web right now?



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

The Ten Forces that Flattened the World

1. 11/9/89: Berlin Wall came down
2. 8/9/95: Netscape went public
3. Work Flow Software (e.g., PayPal and eBay)
4. Open-Sourcing (Self organizing collaborative communities; Mosaic, Apache, Wikipedia, Linux, Mozilla/Firefox,)
5. Outsourcing (Y2K)
6. Offshoring (e.g., China, Mexico, Thailand)
7. Supply-Chaining (e.g., Walmart)
8. Insourcing (UPS fixing Toshiba laptops)
9. In-forming (e.g., Google, Yahoo!, MSN Web Search)
10. The Steroids: Digital, Mobile, Personal, and Virtual (e.g., wireless, file sharing, VoIP, video camera in phone)



3

Telegraph: Flattening the world in 1860

Blogging now begins young

Eighth-grade students Tayler Bernholtz, left, Amy Lostroh 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

WE-ALL-LEARN:

Ten Forces that Opened the Learning World

- Web Searching in the World of e-Books (i.e., Darwin)
- Enormous E-Learning and Blended Learning
- Availability of Open Source and Free Software (e.g., Moodle)
- Leveraged Resources and OpenCourseWare (e.g., MIT)
- Learning Object Repositories and Portals (i.e., shared content)
- Learner Participation in Open Info Communities (YouTube)
- Electronic Collaboration and Interaction (sync and async)
- Alternate Reality Learning (Online Massive Gaming, Simulations, and Virtual Worlds; e.g., Second Life)
- Real-Time Mobility and Portability (e.g., iPhone)
- Networks of Personalized Learning (Blogs, RSS)

The Learning World is Flat
Thomas L. Friedman

Three Larger Trends of WE-ALL-LEARN

- 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.

The Learning World is Flat

The Ten Forces that Flattened the World

1. Web Searching (e.g., Google, MSN, Yahoo!) in the World of e-Books (i.e., Darwin, Shakespeare, etc.)

The Learning World is Flat

The Search is on!

The Learning World is Flat

New programs teach undergraduates how to use the Internet and the online card catalog in search of the best sources
 Chronicle of Higher Education, Andrea Foster, March 9, 2007
<http://chronicle.com/free/v53/i27/27a03801.htm>

- The explosion of electronic information is fueling students' confusion, librarians say. In 1996 there were 10,000 scholarly databases online; now they exceed 18,000. The Web is teeming with more than 100 million sites, up from 18,000 in 1995. Google and Microsoft recently began archiving books and scholarly journals and making them available via their search engines. And two online, academic-oriented encyclopedias, Citizendium and Scholarpedia, are starting up...

Google and Other Search Engines (Sergey Brin, Co-Founder) Google to Impact Chip in Brain!

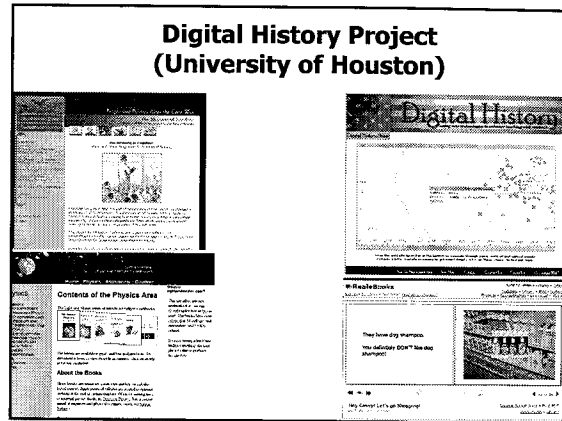
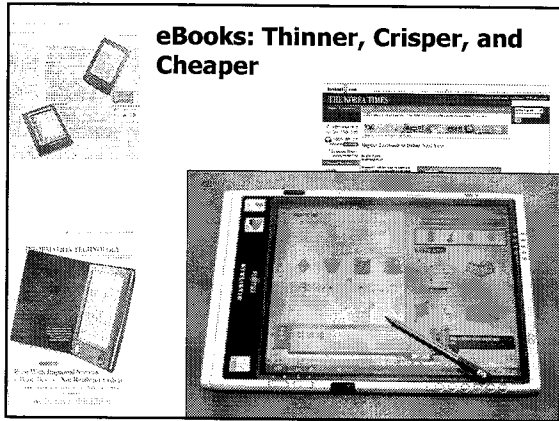


Google Working on Timeline and Map Views

Read, Listen, etc. to "An International Episode" by William James

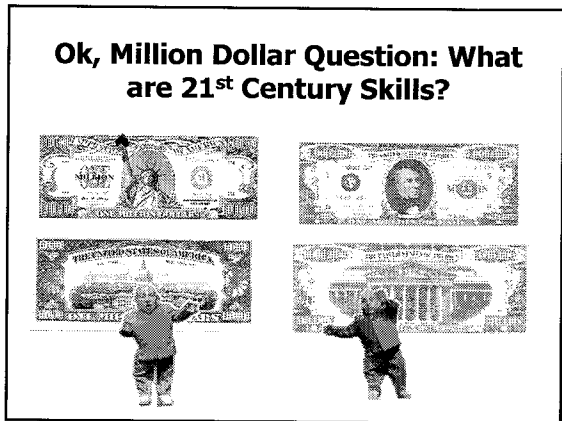
All of Darwin's and Shakespeare's Works are Online

5



Connecting the Digital Dots: Literacy of the 21st Century
 Barbara R. Jones-Kavalier and Suzanne L. Flannigan
 Educause Quarterly (2006), 29(2)

"These days, new media literacy technical skills catapult traditional learning methods into orbit—traditional chalkboards and overheads with pens do not occupy the same realm as current capabilities. As an example, now teachers can do a PowerPoint presentation with streaming video, instant Internet access, and real-time audio-video interaction, and they can do it with relative speed and ease."



If you had to give a word or phrase to describe "21st Century Skills," what would that word be?

**Locate info, synthesize it,
 Decision making,
 Use effectively and ethically,
 Communicate effectively,
 Evaluate products,
 Producers and consumers of visual info,
 Informed critics,
 Sensitive to bias and cultural differences,
 Sets own goals,
 Willing to make mistakes,
 Comparison and contrast skills, inferencing skills,
 Participate in a team, exercise leadership,
 Manage technology for public good**

What Students Need to Know: 21st Century Skills and ICT literacy;
 Susan D. Patrick, President and CEO
 North American Council for Online Learning

The future will demand people who can express themselves effectively with images, animation, sound, and video, solve real world problems that require processing and analysis of thousands of numbers, evaluate information for accuracy, reliability, and validity; and organize information into valuable knowledge, yet students are not learning these skills in school.

From: The Partnership for 21st Century;
www.21stcenturyskills.org. Report: are they really ready to work (2006).
http://www.21stcenturyskills.org/documents/FINAL_REPORT_PD_F9-29-06.pdf



**What Students Need to Know:
21st Century Skills and ICT literacy;**
Susan D. Patrick, President and CEO
North American Council for Online Learning

- Information and communication skills;
- Thinking and problem-solving skills;
- Interpersonal and self-direction skills;
- Global awareness;
- Financial, economic, and business skills; and
- Civic literacy.

From: The Partnership for 21st Century;
www.21stCenturySkills.org
Report: are they really ready to work (2006).
http://www.21stcenturyskills.org/documents/FINAL_REPORT_PDF9-29-06.pdf

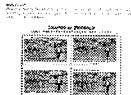
Digital Literacy
(Bonk, June 2, 2007)



- Digital literacy is the ability to browse, locate, filter, synthesize across, and eventually use information appearing in multiple formats and in a wide range of sources that can lead to communication of what one discovered as well as the production of still additional information. (Paul Gilster (1997), Digital Literacy.)

Digital Literacy
(Bonk, June 2, 2007)

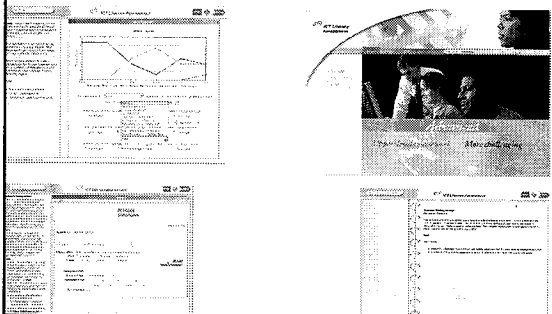
- Digital literacy is not only technology related knowledge, skills, and competencies, but also the critical and creative thinking skills as well as ability to engage in collaborative teams to find and solve problems in a technologically reliant society or environment.



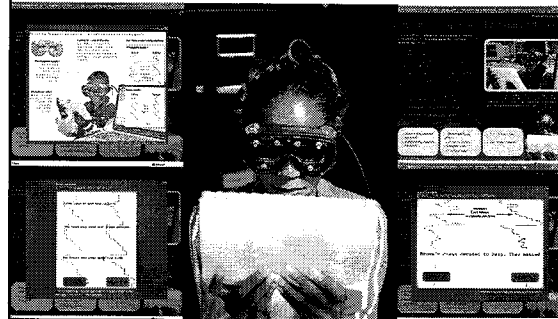
New programs teach undergraduates how to use the Internet and the online card catalog in search of the best sources
Chronicle of Higher Education, Andrea Foster, March 9, 2007
<http://chronicle.com/free/v53/i27/27a03801.htm>

- Among the most well known is the ICT Literacy Assessment, which was developed and is administered by the Educational Testing Service, a nonprofit group based in Princeton, N.J. "ICT" stands for "information and communication technology." The 75-minute test, offered at two levels, measures students' ability in seven areas, including organizing, evaluating, and communicating with electronic data.

New Forms of Digital Literacy
(new tests from ETS)



Technology for Tracking Eye Movements



The Ten Forces that Flattened the World

3. Availability of Open Source and Free Software (e.g., Linux, Apache, Moodle)

The Learning World is Flat

1. eduCommons

Search Commons in Action. Download the Source Code. Join the Implementation Network.

eduCommons is an OpenCourseWare Management System designed specifically to support OpenCourseWare projects like MIT OCW and UConn's OCW. eduCommons allows the community flexibility to successfully develop and manage an OpenCourseWare collection, including a workflow process that starts with creating individual units with a repository, tracking copyright clearance, reassembly of resources into courses, a quality assurance process, and final publication of the materials. At the core of eduCommons is designed to visually align with other OCW's, the look and architecture is equally close to something like ConnXions - all resources are stored as individual learning objects or links to facilitate easy reuse elsewhere. eduCommons is open source software available from SourceForge.

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

2. Moodle

Community Growth

The Sakai Project

The Ten Forces that Flattened the World

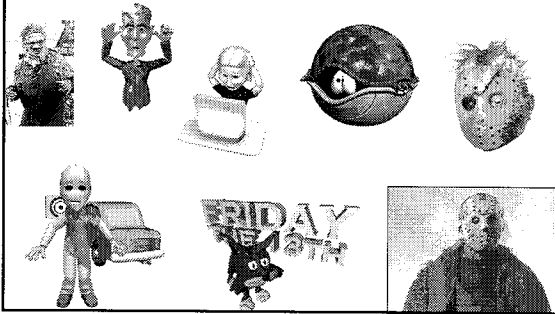
4. Leveraged Resources and OpenCourseWare (OCW) (e.g., free courses from MIT, Utah State, CORE, OOPS)

OPENING UP EDUCATION

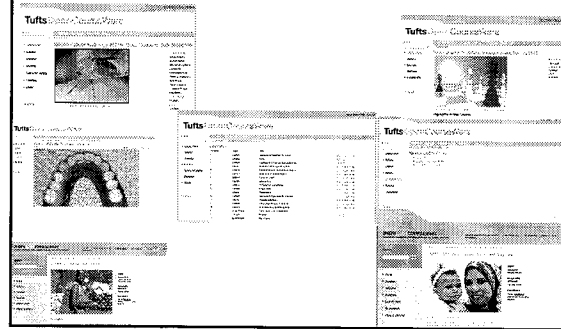
Do You Share?

- Who has shared music in an iPod or MP3?
- Who has used collab software? (Google Groups, Yahoo Groups, Sharepoint)
- Who has used online phone services such as Skype or Google Talk?
- Who has assigned teams online?
- Who has embedded international exchanges or expert guests?
- Who has used MERLOT, Connexions, or the MIT open courses?
- Who has used Wikipedia?

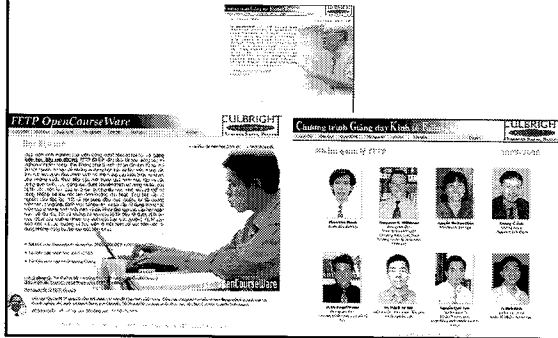
Most are Scared to Share!!!



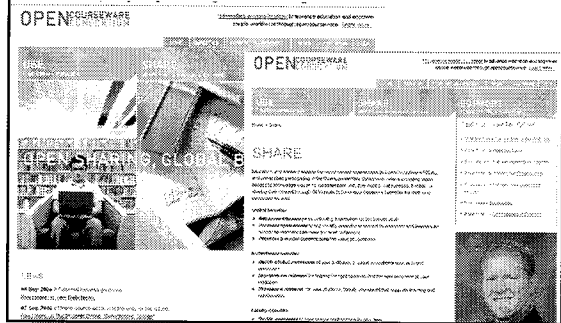
Tufts OpenCourseWare Project



Vietnam Fulbright Economics OCW



Open Source Courseware



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."


Opensource Opencourseware Prototype System (OOPS) funded by, the Foundation of Fantasy, Lucifer Chu, Chairman and Janitor of OOPS, Taipei)



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

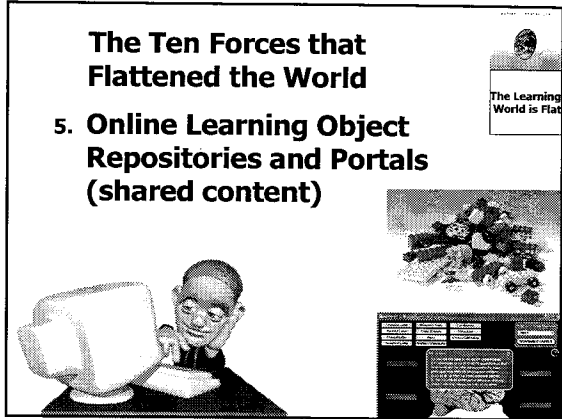
- Collective Minds is better than a single genius translator.
- Perfect Translation doesn't exist.
- 2,012 Volunteer translators
1,125 courses adopted
639 courses near completion (level 1)
- 126 courses already finished

The Biggest OCW Localization Volunteer Group in the World

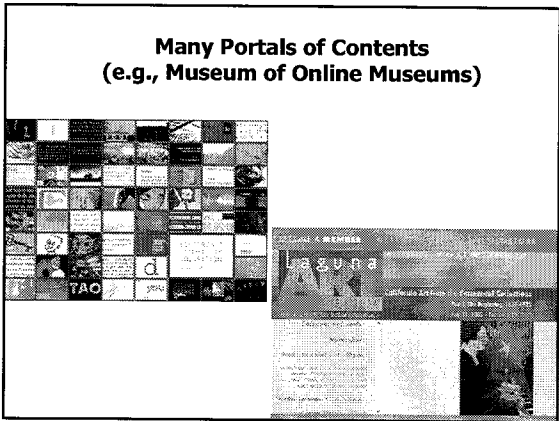


The Ten Forces that Flattened the World

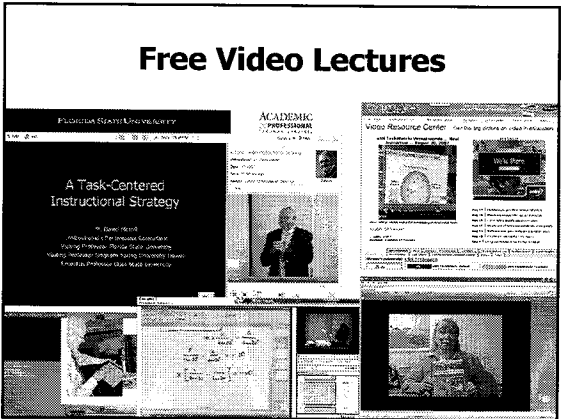
5. Online Learning Object Repositories and Portals (shared content)



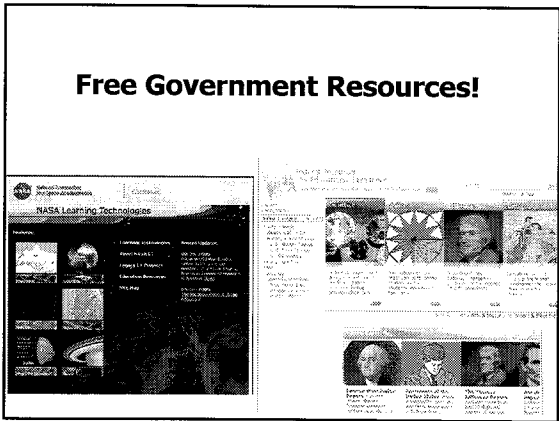
Many Portals of Contents (e.g., Museum of Online Museums)



Free Video Lectures



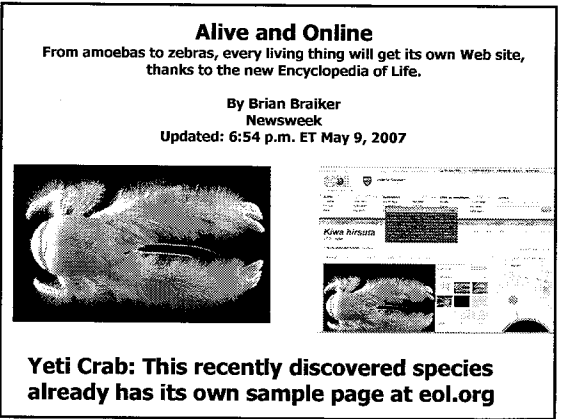
Free Government Resources!



Alive and Online


From amoebas to zebras, every living thing will get its own Web site, thanks to the new Encyclopedia of Life.

By Brian Braiker
Newsweek
Updated: 6:54 p.m. ET May 9, 2007




Yeti Crab: This recently discovered species already has its own sample page at eol.org

**Terry Anderson, Athabasca University
(October 2005)**




"Our Creative Commons licensed book Theory and Practice of Online Learning has been downloaded over 55,000 times (full text) and more by individual chapters. Parts have been translated into 6 languages and we are nearly sold out the 500 copies we printed at \$50 a pop. So it is quite a success story."

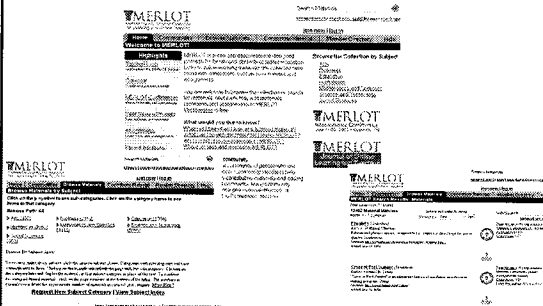
- Anderson, Terry & Fathi Elloumi (Eds). (2004). Theory and practice of online learning. Canada: Athabasca University. http://cde.athabascau.ca/online_book/



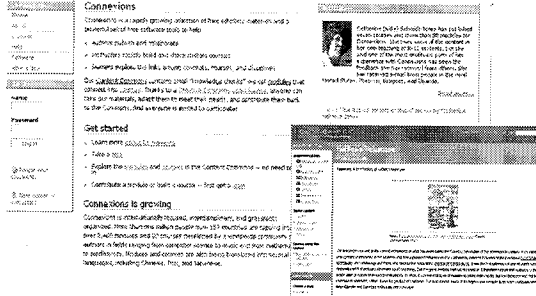
Pubcasts!
NSF, the Public Library of Science, and the San Diego Supercomputing Center created a YouTube for scientists to help demystify important research papers. See SciVee <http://www.scivee.tv/>



A. MERLOT.org




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



C. 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.



D. 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

