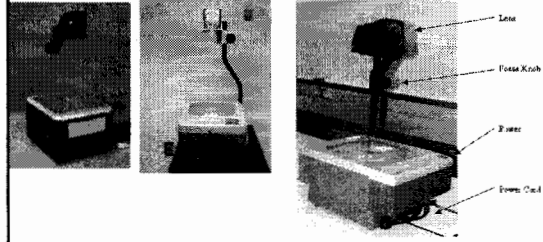


The Perfect E-Storm: Emerging Technology, Enhanced Pedagogy, Enormous Learner Demand, and Erased Budgets

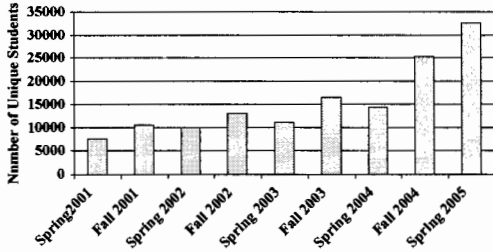


Dr. Curtis J. Bonk
 Professor, Indiana University
 President, SurveyShare, Inc.
<http://php.indiana.edu/~cjbbonk>
cjbbonk@indiana.edu

Emerging Technologies at Maryland...



Enormous Learner Demand in Maryland WebCT@Maryland (March 2005)



Enormous Learner Demand in Maryland UMUC Online Enrollments

THE SLOAN CONSORTIUM
 A Consortium of Institutions
 and Organizations Committed to

	2000	2001	2002	2003	2004
enrollments	95,969	62,636	87,423	110,422	126,490
% of total enrollments	19%	24%	27%	49%	48%

* fiscal year data

Innovative Teaching in Maryland



M.E.S. students
 mobile by
 BlackBerry
 Institute of Science
 at the U of
 Maryland at
 College Park

USA Today, March 29, 2005, Money

- The University of Maryland last fall gave 400 incoming MBA students free BlackBerry portable e-mail devices so they could practice prioritizing e-mails in an always-connected mode.
- Jason Madhosingh uses the gizmo to communicate with classmates about group projects. "I can use it when I'm waiting to get a cup of coffee," Madhosingh says, noting that it flashes with new e-mail about every 10 minutes. "It's training me to communicate effectively in a large organization."

Erased Budgets in Maryland

Technology Used Mostly for Basics
 Maryland Schools Neglecting Computers

By The O. M. and Evelyn Taylor
 Washington Post Staff Writers
 Washington, March 22, 2003, Page B01

John Brown is all too aware that the computers in his classroom at Manassas Park High School in Southern Maryland can be used for more than just learning how to program. So he deems a hard law well for students:

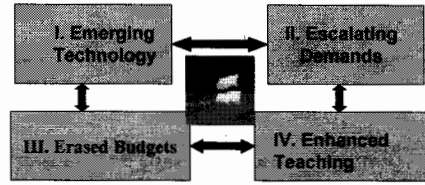
"Under no circumstances are any kids in my class allowed to play computer games," he said yesterday. "That gets the heads ready."

Still, his students admit that it's hard to resist the temptation to surf the Internet and send instant messages. Spynation, 17, demonstrated a Pac-Man-style game someone had written on his computer. Another program played all the songs from the Super Mario Brothers video games. On days when Brown is replaced by a substitute teacher, the students said, they play in video game tournaments online.

Brown's struggle illustrates the challenge facing schools across the state as they grapple with how to integrate technology into classrooms. A survey released yesterday found that "despite the investment of millions of dollars by school districts, Maryland students and teachers use their computers mainly for such basic tasks as e-mail and word processing."

"Why have all the money gone into the program if we're not going to see it?" asked Carol Lewis, principal of May St. Middle Elementary School in La Plata, which has wireless Internet technology, Internet phones in each classroom and laptops for staff members.

Four Storms are Approaching



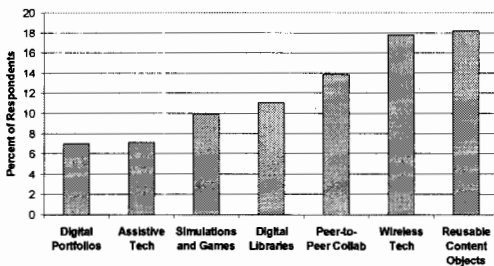
Ok, Million Dollar Question: Which technology will impact higher education the most in the next few years?



Storm 1. Emerging Learning Technologies

1. Assistive Technologies & Talking Computers
2. Blogs and Online Diaries
3. Digital Portfolios
4. Electronic Books
5. Online Communities and Learning Portals
6. Intelligent Agents
7. Online Exams and Homework
8. Online Games and Simulations (Massive Multiplayer Gaming)
9. Online Translation Tools & Language Learning Systems
10. Course Management Systems
11. Peer-to-Peer Collaboration
12. Reusable Content Objects
13. Videostreaming, IP Videoconferencing
14. Virtual Worlds/Reality
15. Wearable Computing
16. Wireless Tech: Tablet PCs, Handheld Devices

Technologies Expected to Most Impact the Delivery of Online Learning During the Next Five Years



1. Computers that Talk to You (\$595) USA Today, June 18, 2003



- How is the weather this morning?
- What is the score of the Cubs game?
 - What time is it in Helsinki?
 - Give me a recipe for chicken.
 - How did the market do today?
 - What is 16 degrees in Celsius, in Fahrenheit?
 - Where is *Finding Nemo* playing?



2. Blogs (diaries, writing)



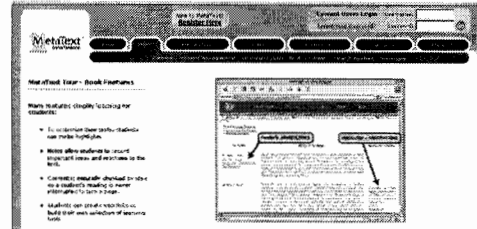
Number of Hosted Blogs Created, by Age, 2003

Age Group	Blogs created	% of blogs created
10-12	55,300	1.3%
13-19	2,170,000	51.5%
20-29	1,430,000	39.6%
30-39	241,000	5.8%
40-49	41,700	1.0%
50-59	16,500	0.4%
60-69	13,900	0.3%
Total	4,120,600	100%

Source: Perseus Development Corporation, October 2003
©2003 Perseus Development Corporation

Perseus projects that there will be over 5 million blogs by the end of this year, and over 10 million by the end of 2004. The National Institute for Technology and Liberal Education (NITLE) estimates that there were roughly 1.3 million blogs worldwide as of last month.

3. Electronic Books



4. Reusable Learning Objects

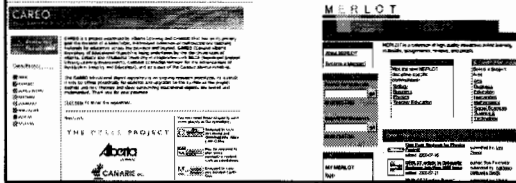
- "Learning Objects are small or large resources that can be used to provide a learning experience. These assets can be lessons, video clips, images, or even people. The Learning Objects can represent tiny "chunks" of knowledge, or they can be whole courses."

Claude Ostyn, Click2Learn



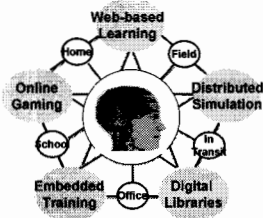
Where Find Examples and More Info?

- MERLOT.org
- CAREO.org
- SCORM and ADL



Advanced Distributed Learning (ADL)

Provide access to the highest quality education and training, tailored to individual needs, delivered cost effectively, anywhere and anytime.



ADL as an enabler

Accessible: access instructional components from one location and deliver them to many other locations

Interoperable: use instructional components developed in one location with a different platform in another location

Reusable: incorporate instructional components into multiple applications

Durable: operate instructional components when base technology changes, without redesign or recode

Affordable: increase learning effectiveness significantly while reducing time and costs

8. Wireless Technology

MOST (UN)WIRED SCHOOLS?

CNET and U.S. News and World Report got the top 50 universities' tech specs and asked them which computers they recommend to students and faculty.

[CLICK HERE TO VIEW](#)



E-learning Moves Wireless



THE KOREA TIMES

Technology

3.5-inch Learning Attract High School Students

By Kim Tae-gyu
Staff Reporter

Starting this month, high school students preparing for the college entrance exam will be able to use personal gadgets to study instead of textbooks on the bus or subway.

Koreasoft said Friday it's the nation's leading online education firm will launch services providing lectures via personal multimedia player (PMP) through a business alliance with Inver.

The mobility-specific educational services will start on Sept. 22, when Inver, the sales unit of local MP3 maker RegnCom, releases the PMP-100 in stores.

Koreasoft will offer lessons from 12 top lecturers for the College Scholastic Ability Test (CSAT), and students can download them free of charge with a PMP-100.

The company also said it will diversify its offerings with fee-based premium services but will still offer basic lectures for free.

The PMP-100 is equipped with a 3.5-inch liquid crystal display monitor and storage capacity of 20-40 gigabyte.

09-17-2004 18:01

The gadget is an all-in-one handheld device, which allows users to view full-motion video, scan to MP3 music, record voice messages in real time, view still images and play games.

"With our new services, students will be able to study via wireless video lectures. Afterward, we plan to continue to make reaches in the m-learning market," Koreasoft president Yun Doo-sun said.

Together with the PMP services, educational electronic books are also hitting store shelves.

Earlier this week, domestic electronic bookmaker BooktraX came out with an e-book, which contains 15 volume books, seven for humanity majors and the other eight for science and engineering students.

In addition to its mobility, the e-book is also most effective as its overall contents cost just 20,000 won compared to 180,000 won when purchased separately at bookstores.

When studying Korean language and English, the e-book supports listening tasks without reading cassette tapes thanks to its MP3 functionality.

Observers predict the so-called m-learning market will overhaul the landscape of the total education market along with the TV lectures broadcast over EBS.

In an effort to tame the nation's ever-increasing private tutoring costs, the government launched free lecture programs via TV and high-speed Internet from April.

voic@koreatimes.co.kr

WI-FI PENETRATES CAMPUSES

Colleges are quickly building wireless networks, beginning to connect students and faculty seamlessly to classrooms and research.

Wireless network plans

LANEKO 41%	PLUMBERRY PLUM 16%
COMPREHENSIVE 8%	STRENGTH PLUM 11%
NO PLANS/NOT SURE 36%	

USA Today, Money

Photo Credit: Our first with College

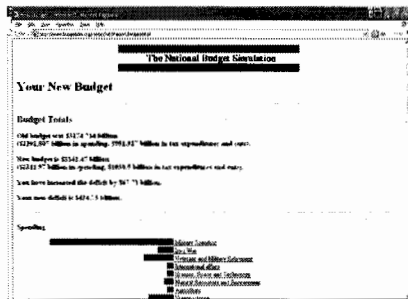
Big tech on campus
By Marguerite Reardon, CNET News.com
September 6, 2004

9. Tablet PCs Finally Taking Off (Wired News, Sept 28, 2003)

- "And while Promisel said there will be a consumer market for tablet PCs -- such as college students taking them to class for note-taking -- what really needs to happen for the tablet PC to take off is the development of new software applications for corporate customers. ... predicts that in 2003, a total of 500,000 tablet PCs will be sold around the globe, which represents about 1 percent of the total portable PC market... But, by 2007, IDC recasts that the tablet PC could account for well over 20 percent of the portable market."



10. Online Simulations: National Budget and Biology



11. Collaborative Tools

ABSA 2004 Division 8 Symposium
Document Libraries

Use this page to go to a document library and read or edit the documents that are stored there. To create a new document library, click "New Document Library" below.

ABSA Symposium "Working" Papers
Please post your ABSA papers by March 29, 2004 here.

Shared Documents
Share a document with the team by adding it to this document library.

12. Pedagogical Course Management Systems?

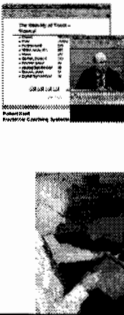
Blackboard Course Management System

December 27, 2001 - January 3, 2002

Blackboard is a course management system that allows you to create and manage your course online. It provides a central location for all course materials, including syllabi, assignments, and discussions. You can also communicate with your students through email, chat, and discussion boards.

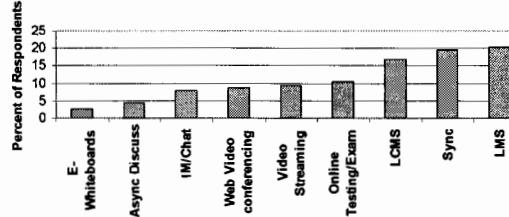
13. Videostreaming and Videoconferencing (to take off in next several years ...\$4.5 billion in 2007 (Sept 23, 2003, Stephanie Olsen, CNet News.com).

- "...once they are recorded, the lectures can be reused in subsequent classes or stored as reference materials...I now have 100% of my lectures ready for the next time I teach this class." (On Demand Lectures Create an Effective Distrib Ed Experience, T.H.E. Journal, Nov, 2003, Stanley D. Lindsey).



Synchronous technologies will be used more in business.

E-Learning Technology Most Likely to Dramatically Increase In Use in Next Few Years



Videostreaming is a Breeze!

Active Learning with Technology: Myths, Magic, or just a lot of Bunk

Abel

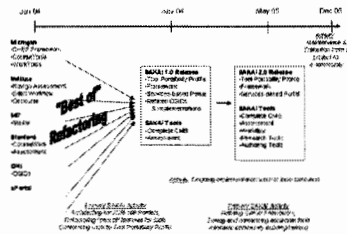
Student Outcomes in Online Learning Compared to Traditional Instruction

YORK UNIVERSITY

14. Open Source Software Standards for Ed Tech Interoperability Standards, Nov. 24, 2003

<http://www.cetis.ac.uk/content2/20031124150257>
<http://www.sakaiproject.org/sakaiproject/>

SAKAI Overview



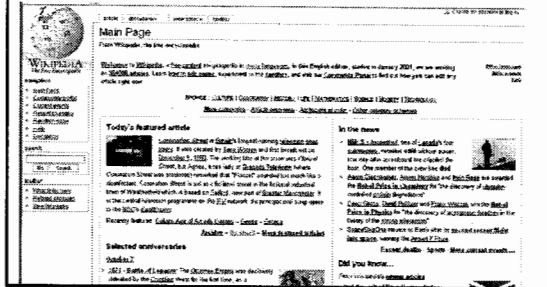
**WebCT, Sakai Project Mavens Pledge
Open Standards Harmony**
Campus Technology, News for Tuesday, April 5, 2005



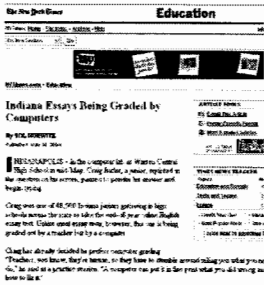
Outside observers are taking a wait-and-see stance on the cooperation pledge. Scott Leslie, an educational technology researcher who maintains the edtechpost Website, said, "from where I'm sitting, if there's a way that third party learning tools can interoperate with different learning environments that is not based on proprietary APIs, that seems like a good step forward. If, instead, the Tools Interoperability specification becomes 'Powerlinks for everyone,' well then, praise the lord and pass the hand grenades."



15. Wikipedia



16. Computer Grading
(New York Times, May 19, 2004, Latent Semantic Analysis, Thomas K. Landauer, UC Boulder)



What about negative technologies?



Monty Python Spam Song

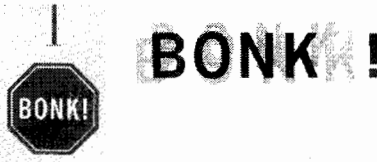
- **Wife:** Have you got anything without spam?
- **Waitress:** Well, there's spam egg sausage and spam, that's not got much spam in it.
- **Wife:** I don't want ANY spam!
- **Man:** Why can't she have egg bacon spam and sausage?
- **Wife:** THAT'S got spam in it!
- **Man:** Hasn't got as much spam in it as spam egg sausage and spam, has it?
- **Vikings:** Spam spam spam spam... (Crescendo through next few lines...)
- **Wife:** Could you do the egg bacon spam and sausage without the spam then?
- **Waitress:** Urrghh!



Monty Python Spam Song

- **Vikings:** Spam spam spam spam. Lovely spam! Wonderful spam! Spam spa-a-a-a-a-am spam spa-a-a-a-a-am spam. Lovely spam! Lovely spam! Lovely spam! Lovely spam! Lovely spam! Spam spam spam spam!


How many have ever felt that they hit the wall as far as teaching online?



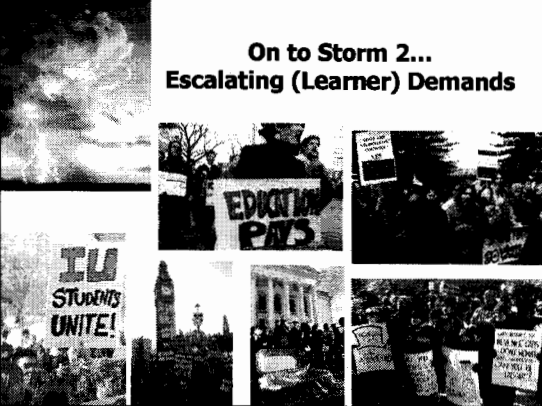
BONK!

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

When your body stalls mid-run, it's called bonking.



On to Storm 2... Escalating (Learner) Demands



THE NUMBERS ALONG MEMORY LANE:

1994:
 • 38 million Internet users; 5,000 Web sites worldwide; 39% of U.S. schools wired
 • GPS satellites fully functional
 • Web grows at a 341.634% annual rate

1995:
 • eBay and Yahoo founded.
 • The first macro virus is discovered in a Word document.

1996:
 • The number of Net hosts exceeds 9 million.

1997:
 • 71,618 Usenet newsgroups

1998:
 • Google officially opens its doors, about two years after founders Larry Page and Sergey Brin begin developing a search engine.

1999:
 • Online retailers register \$5.3 billion in sales.

2000:
 • 304 million people have access to the Net.

2001:
 • 30 million Web sites exist.
 • Osama bin Laden No. 1 searched on Google in October.
 • Apple unveils the iPod.

2002:
 • Verizon launches first high-speed 3G cell network.
 • Friendster social networking site founded.

2003:
 • Wal-Mart tells its suppliers to put RFID tags on all pallets by 2005.
 • Hewlett-Packard ships 1 million digital cameras each quarter, double the previous year.

2004:
 • One millionth BlackBerry e-mail device sold.
 • Google indexes 4.2 billion Web pages.
 • 800 million Internet users; 100 million songs downloaded from iTunes; 99% of U.S. public schools wired.

Demand for Internet in US (Special MSNBC report, Dec 13, 2004)

Always online -- and always talking
 When three days without a word is an eternity

Difficulty in disconnecting
 As technology continues to influence the lives of young people, some are choosing to unplug from the Internet and other high-tech gadgets. Others say it would be hard to disconnect.

Percentage who say it would be "very hard" to give up...


Group	Computer	Cell phone	Internet	Telephone	Personal digital assistant (PDA)
Young Tech	24%	18%	24%	17%	23%
Older wired	24%	18%	24%	17%	23%
Wired Gen Xers	24%	18%	24%	17%	23%
Baby Boomers	24%	18%	24%	17%	23%
Elders	24%	18%	24%	17%	23%

NOTE: Only those who use the particular technology.

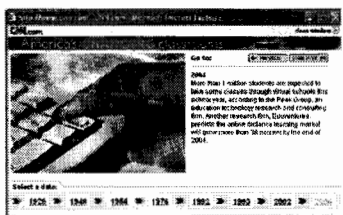
SOURCE: Pew Research Center, American Life Project

Generation Raised on the Internet Comes of Age, MSNBC, Dec., 13, 2004, Martha Irvine

- For 21-year-old William Herbert, the Internet has replaced newspapers and TV weather reports (he visits Weather.com every morning). He pays his bills online, registers for classes, books airline and train tickets, checks TV listings, buys movie tickets and gets travel directions.



- The Peak Group, an educational consulting firm, estimates that more than 1 million American high school students are currently taking Internet courses, up from 571,000 last year and 378,000 the year before.
- More students log on to learn, Boston.com, Peter Schworm, September 16, 2004.

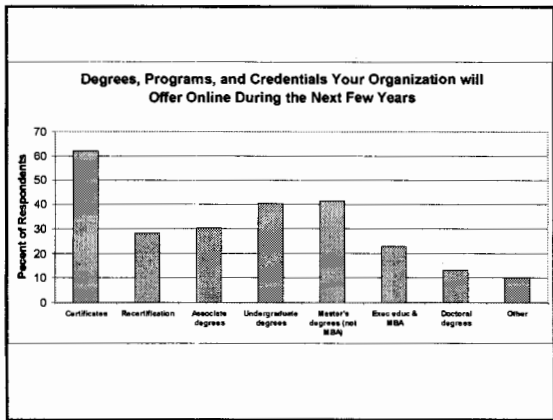
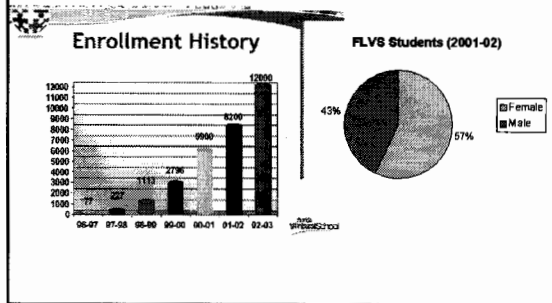


A Concept Paper on Funding State Sponsored E-Learning Programs
 Daniel W. Schultz and Jamey Fitzpatrick
 Michigan Virtual University, January 2004

Table 1: State Sponsored Virtual High School Enrollment Growth

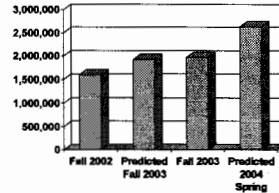
K-12 Virtual Initiative	Launch Year	Launch Year Enrollment	Enrollments in 2002/03	Avg. Annual Enrollment Growth
Florida Virtual High	1997	77	10,000	165%
Illinois Virtual High School	2001	409	1,232	201%
West Virginia Virtual High School	2000	300	1,200	100%
E-School (Hawaii)	1997	96	500	39%
Michigan Virtual High School	2000	77	7,282	125%

Julie E. Young, Executive Director, Florida Virtual School (2003)



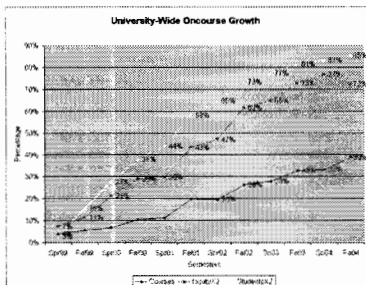
The Sloan Consortium (2004). Entering the Mainstream: The Quality and Extent of Online Education in the US, 2003 and 2004
<http://www.sloan-c.org/resources/survey.asp>

Number of Students Taking at Least One Online Course



Entering the Mainstream: The Quality and Extent of Online Education in the United States, 2003 and 2004 (SLOAN-C, 2004)

Indiana Univ (8 campuses): Spring 2005
 Students: 89,413 loaded; 78,549 logged in (88%)
 Faculty: 7,014 loaded; 5,441 logged in (78%)
 Courses: 22,419 loaded; 9,206 active (41%)



INDIANA UNIVERSITY SCHOOL OF NURSING

Academic Programs

- BACHELOR'S**
 - B.S.N.
 - B.S.N./M.S.N.
 - B.S.N./M.P.H.
- MASTER'S**
 - M.S.N.
 - M.S.N./M.P.H.
 - M.S.N./M.A.
- PH.D.**
 - Ph.D.
 - Ph.D./M.P.H.
 - Ph.D./M.A.

Faculty



Life-long Learning

- Distance & Continuing
- Web-based Courses
- Self-paced Courses

Faculty Research & Employment

- Conducting Research on Online Learning
- Collaborating on Research
- Working on Faculty Research on Career Development
- Leading Instructional Development

Kelley Direct Online Programs
Indiana University Kelley School of Business





Kelley Direct Head Count (est.)

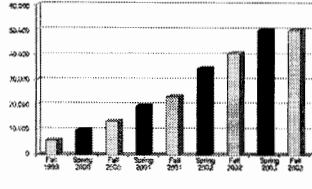
	2002-3	2003-4	2004-5	% change 03-04 to 04-05
Corporate MBA	212	294	323	10
Public MBA	268	312	403	29
University Partnership	0	2	14	600
Corporate MS	26	63	67	6
Public MS	14	20	68	240
Certificate Programs	0	40	84	104
TOTAL	520	731	959	33

KELLEY School of Business
KD.IU.EDU
Indiana University Kelley School of Business

Illinois Virtual Campus (Fall 2003 Newsletter);
Ivan Lach, lstovall@uillinois.edu
http://www.ivc.illinois.edu/pubs/enrollment/Fall_03.html



- 68 Illinois institutions (public and private, 2-year and 4-year)
- 3,742 course sections and 50,093 students in fall 2003
- 125,074 online students during 2002-2003 year (54% increase)
- 34,399 for summer '03 (45% increase)



See also: <http://www.ivc.illinois.edu/> (Oakley, 2003)

ILLINOIS VIRTUAL CAMPUS
Distance Education Enrollments at Illinois Colleges and Universities Fall Term 2003

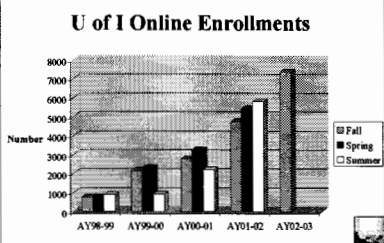

Change in Distance Education Enrollments at Illinois Colleges and Universities by Delivery Mode from Fall Term 2002 to Fall Term 2003

Delivery Mode	Fall 2002	Fall 2003	Change	% Change
Internet	40,550	50,093	+9,543	+24%
Stored Media	15,337	14,782	-555	-4%
Interactive TV	6,416	8,982	+2,566	+40%
Open Broadcast TV	4,001	2,959	-1,042	-26%
Correspondence	2,909	2,578	-331	-11%
All Distance Education	69,213	79,394	+10,181	+15%

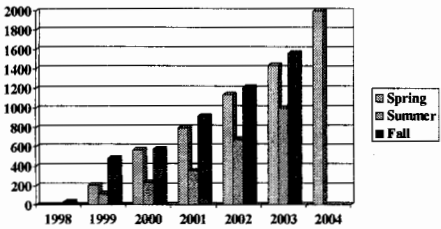
http://www.ivc.illinois.edu/pubs/enrollment/Fall_03.html

University of Illinois Online

U of I Online Enrollments

University of Illinois at Springfield



	2000	2001	2002	2003	2004
enrollments	1,373	2,066	3,017	3,988	5,105
% of total credit hrs	-	-	11.5%	13.8%	19%

* calendar year data

Penetration of online learning

http://www.online.uillinois.edu/oakley/presentations/IOC_20Feb04.ppt (Burks Oakley, March 18, 2004)

- In the Spring 2004 semester at UIS
 - 31% in at least 1 OL class (about 1 in 3)
 - 17% enrolled in OL exclusively
 - 18% credits are generated by OL (40% growth from 2003)
 - 47% of 2003 grads took at least 1 OL course
 - 50% of faculty taught at least 1 OL course.
 - Retention rate ranges from .93-.96 percent.

What about Ohio State in 2003-2004?

- Use of WebCT up from 300 in '99 to > 30,000 in 2003-04.
- Plus there are 5,000 students on 3 independent servers.
- Fully online up but less than 10% of courses & students

"What a difference one year makes: The number of course sections using WebCT at OSU nearly doubled between Autumn 2002 and Autumn 2003 -- going from about 900 to 1,800 sections. Between the 2002-03 and 2003-04 school years, students went from having an average of 3 classes per year on WebCT to having about 5 a year utilize a class web site on the system."
 - Per Tom Stone [stone.177@osu.edu]. May 24, 2004

SUNY Learning Network

(Peter Shea; Director: SUNY Learning Network, May 24, 2004, Peter.Shea@sln.suny.edu)

University of Pretoria (Lazenby, 2004; Blended with WebCT)

But what is the quality?

Student Outcomes in Online Learning Compared to Traditional Instruction.

We're in the Midst of Storm 3: Erased Budgets

WEDNESDAY January 21, 2004 Bloomington, Ind.

IU, Purdue lead Big Ten in state funding increases

But state still playing catch-up with peers

Changes in state appropriations, 2000-01 to 2003-04, as big ten public universities

Online Student Retention

- There is no national statistics on online student retention, but in general:
 - The national retention rate in online classes is typically 70-75% (Chronicle of Higher Education, 2000)
 - Drop-out rates among online students are believed to be 10-20% higher than among traditional students (Carr, 2000; Diaz, 2002; Frankola, 2001)



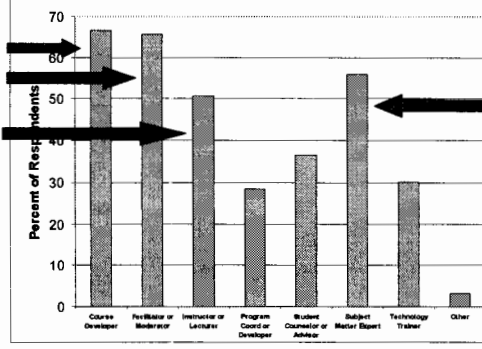
Three Most Vital Skills

The Online Teacher, TAFE, Guy Kemshal-Bell (April, 2001)

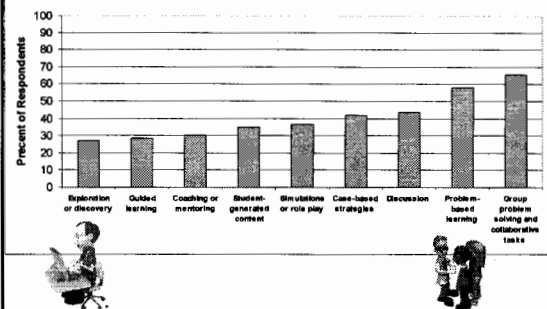
- Ability to engage the learner (30)
- Ability to motivate online learners (23)
- Ability to build relationships (19)
- Technical ability (18)
- Having a positive attitude (14)
- Adapt to individual needs (12)
- Innovation or creativity (11)



Skills Needed to Teach Online in 2010



Instructional Approaches that Selected by Respondents as Among the Four Strategies Likely to Become More Widely Used



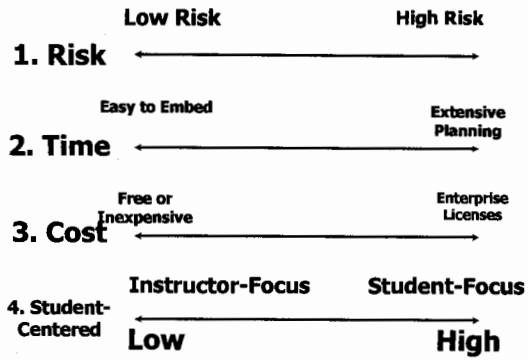
Online is Easy Ideal Student and Instructor Education Week, May 9, 2002. p. 16

- Student: Mature, independent learner.**
- Instructor: Flexible, enthusiastic, patient, innovative, creative, provide prompt feedback, builds communities, hard working, facilitate, motivate, support, engage, responsive, planful, etc.**



Master Online Teacher

- ION offers the "Master Online Teacher" certificate based on the MVCR courses (99 completed as of 5/23/04)
- 4 core courses, 1 elective course, plus a supervised practicum



1. Online Performance



2. Real World: Internships and Field Experience Job Interviews

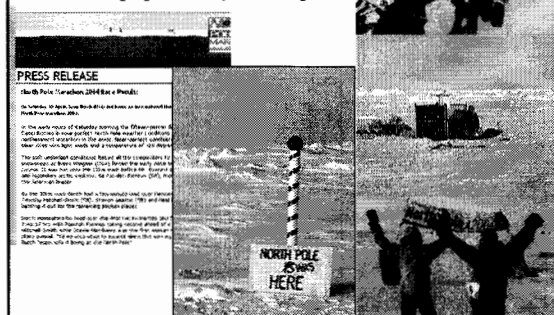
- Field Definition Activity: Have students interview (via e-mail, if necessary) someone working in the field of study and share their results**
- As a class, pool interview results and develop a group description of what it means to be a professional in the field



3. Adventure Learning: Reality Teaching and Learning (Andrew Revkin, New York Times, May 25, 2003)



North Pole Marathon (April 10, 2004)



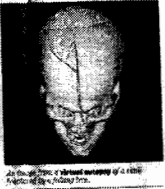
Virtual Surgery




Virtual Autopsy Scores Some Success

By Catherine A. Whelan and Laura K. Adams

IT'S AN AUTOPSY WITHOUT THE BODILY ASPECTS. A group of four researchers at the University of Illinois at Chicago (UIC) have developed a virtual autopsy program that allows medical students to practice their skills in a safe, controlled environment. The program, called "Virtual Autopsy," is a 3D simulation of a human body that can be viewed from any angle. It includes a virtual dissection table, a virtual scalpel, and a virtual camera. The program is designed to help students learn the basics of autopsy, such as how to make an incision, how to remove an organ, and how to examine an organ. The program is also designed to help students learn how to document their findings. The program is being used by medical students at UIC and is being evaluated by researchers at UIC. The program is being used by medical students at UIC and is being evaluated by researchers at UIC.



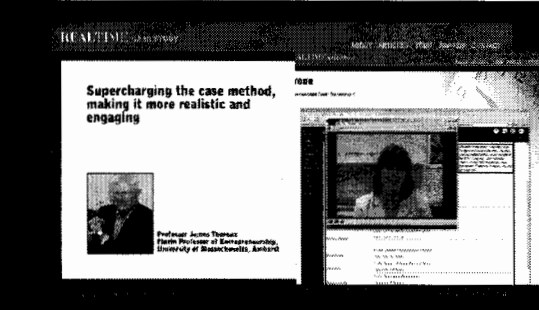
4. Tension: Role Play



Assume Persona of Scholar

- Enroll famous people in your course
- Students assume voice of that person for one or more sessions
- Post a 300-700 word debate to one or more of the readings as if you were that person. Enter debate topic or Respond to debate topic
- Respond to reading reflections of others or react to own

5. Real-time Cases

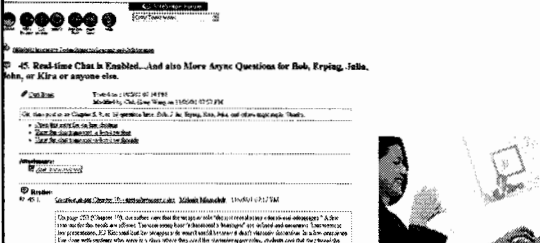


Supercharging the case method, making it more realistic and engaging

Professor Arno Thoma, Dean Professor of Entrepreneurship, University of Bonn, Germany

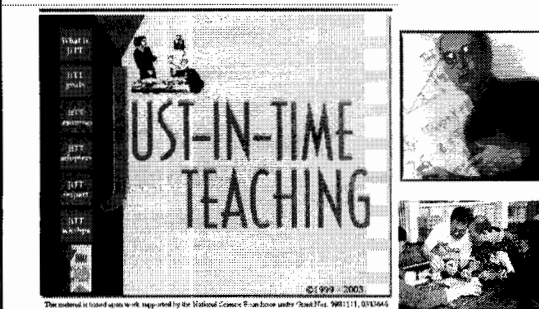
6. Threaded Discussion plus Expert Chat (e.g., Starter-Wrapper + Sync Guest Chat)

(L = Cost, M = Risk, L/M = Time)



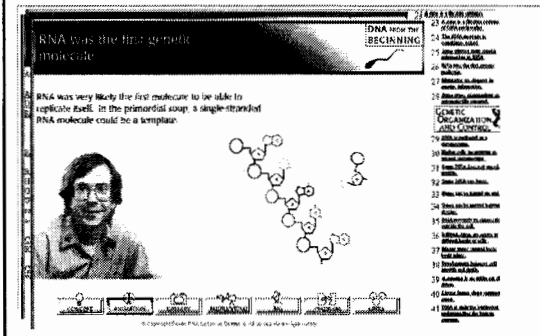
45 Real-time Chat is Enabled...And also More Async Questions for Bob, Erping, Jella, Jaha, or Kira or anyone else.

7. Just-In-Time-Teaching



The method is based on the work supported by the National Science Foundation under Grant No. 9981111, 0103641 and 0103642. Rights are reserved by the author(s) of the method and the work.

8. Rich Supplemental Resources



RNA was the first genetic molecule

RNA was very lucky the first molecule to be able to replicate itself. In the primordial soup, a single-stranded RNA molecule could be a template.

DNA was the first genetic molecule

RECOMMENDED READING

1. The Origin of Life
2. The First Genetic Molecule
3. The First Genetic Molecule
4. The First Genetic Molecule
5. The First Genetic Molecule
6. The First Genetic Molecule
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45. The First Genetic Molecule

9. Digital Movies of Campus Life

VIDEO: BERTOLINI/STYLING BY MICHAEL J. COOPER

Alt, Shoot

Discoveries of digital pay-as-you-go...
 original motion picture...
 show... more for content

MOVIE

BusinessWeek online

Internet Radio 101

10. Use those iPods

- Practice foreign language dialects
- Record scripts for theater classes
- Analyze music in engineering labs
- Digitally record own radio shows
- Tape writing center tutoring sessions
- Access portal of university info
- Record lectures

11. Electronic Voting and Polling

(L/H = Cost, M = Risk, M = Time)

1. Ask students to vote on issue before class (anonymously or send directly to the instructor)
2. Instructor pulls our minority pt of view
3. Discuss with majority pt of view
4. Repoll students after class

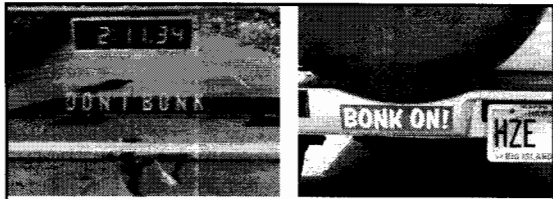
(Note: Delphi or Timed Disclosure Technique
 anonymous input till a due date
 and then post results and
 reconsider until consensus
 Rick Kulp, IBM, 1999)

12. Goal Driven and Product Based: Video Papers

Recap of the Perfect E-Storm....

1. Emerging Technology
2. Escalating (Learner) Demands
3. Erased Budgets
4. Enhanced Teaching

So, which direction will you go?



Any questions, comments, or concerns?

