Implementing Learner-Centered Teaching in a Technology-Rich Environment

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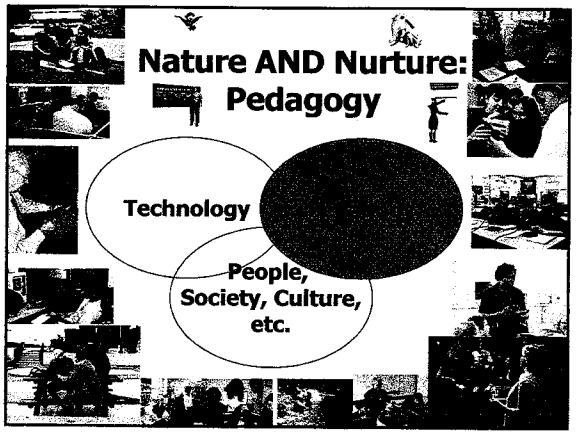
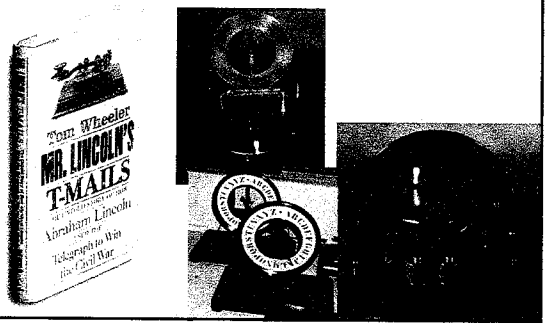
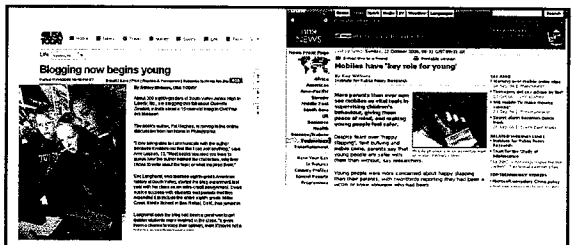
Nature AND Nurture: Pedagogy



Telegraph: Flattening the world in 1860



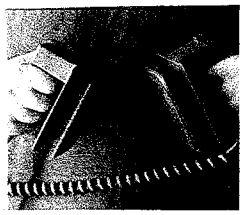


Eighth-grade students Tayler Bernholtz, left, Amy Lostroh and Kelsey Cardiff check out a weblog discussion related to the Civil War historical-fiction book 'Guerrilla Season' At South Valley Junior High School in Liberty, Mo. (Blogging now begins young USA Today, By Ashley Bleimes, USA TODAY, November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

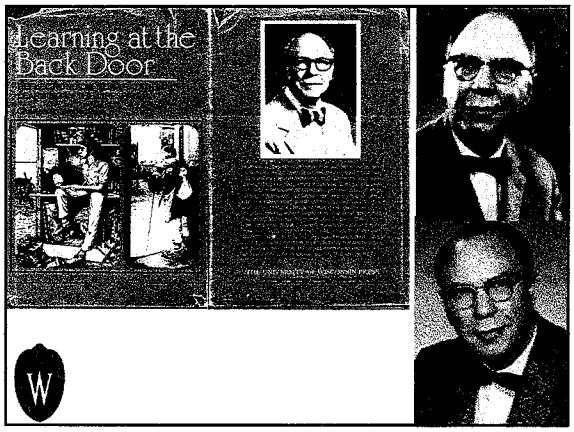
Schools of the 1880s

Constantly hit on the head about integrating technology...

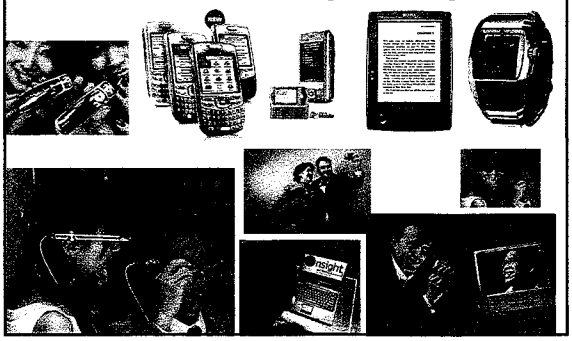
Accelerate Learning



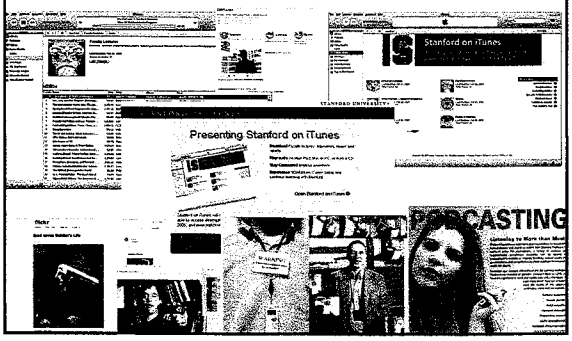
Technology of the 1980s



21st Century Technology: Podcasts and Wikis and Blogs, Oh My!!!!

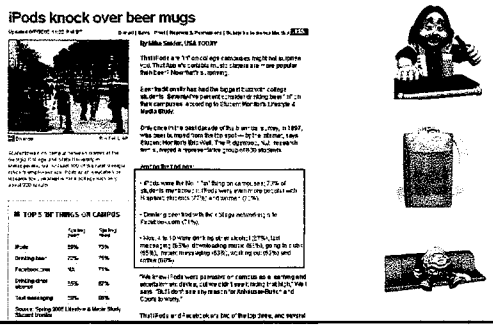


Podcasting
http://itunes.stanford.edu/

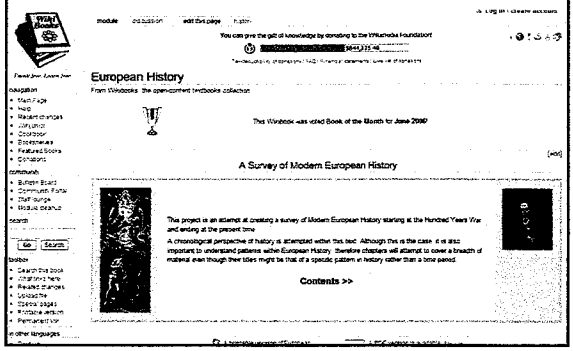


Top 5 "In" Things on Campus
June 7, 2006, USA Today

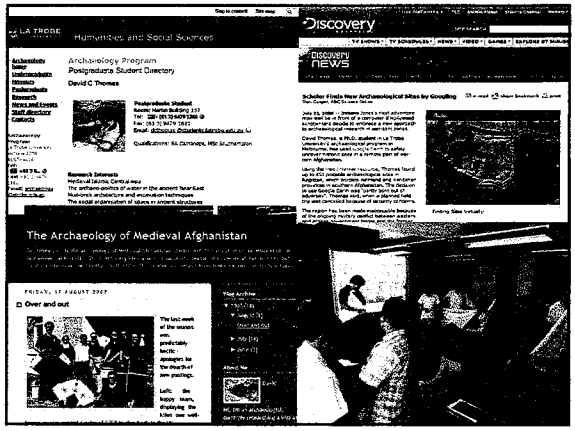
iPods knock over beer mugs



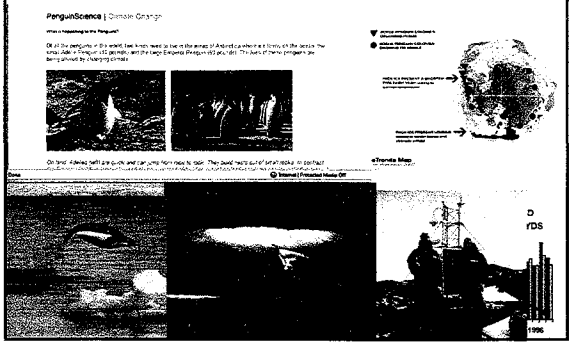
Wikis and Online Encyclopedias



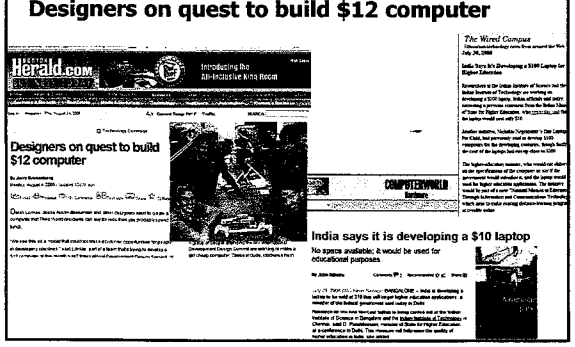
Adventure Blogging:
North Pole Marathon



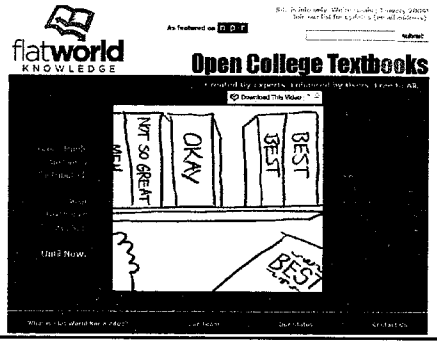
Jean Pennycook (Geographical blogging)
http://www.penguinscience.com/clim_change_ms.php



Jerry Kronenberg Monday, August 4, 2008
Boston Herald
Designers on quest to build $12 computer

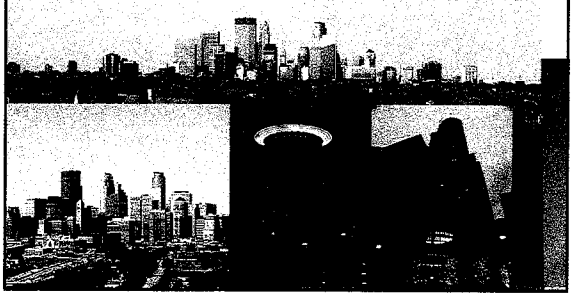


Open Access Books

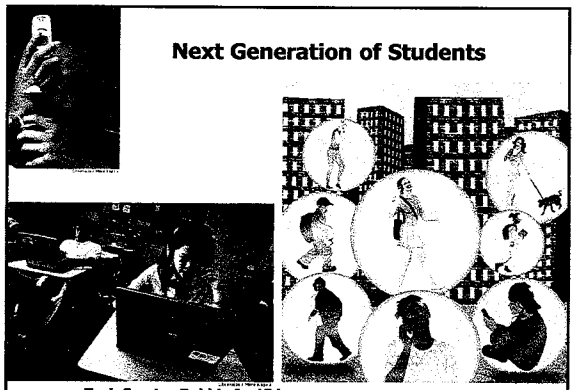


Magic Pens! (The Pulse from Livescribe)

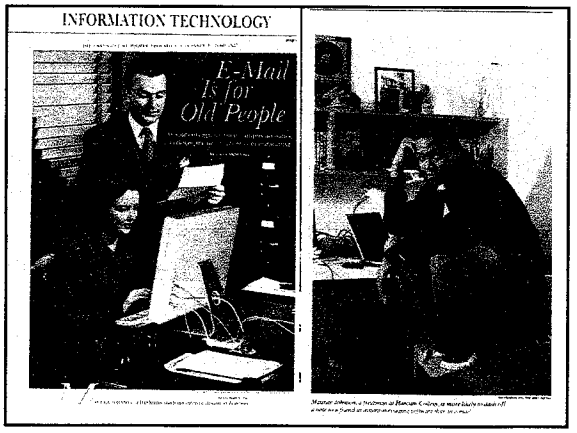
Capella Tower
225 South Sixth Street, Minneapolis
Formerly, the "Halo"



Next Generation of Students



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



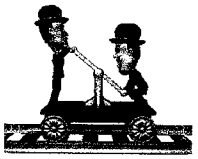
Yahoo News
Love me, love my blog," as Netorati couple-surf
BY SARA LEDWITH Thu Aug 3, 8:30 AM ET

- 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.

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?

Part II. Motivational Ideas

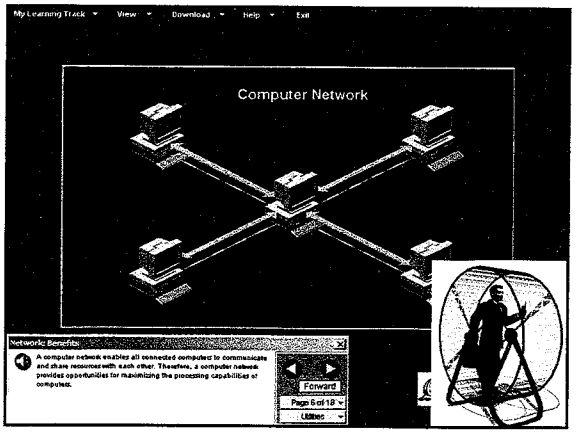


Most ID Models in the 1980s Prescriptive

Robert Gagne's 9 instructional events

gaining attention	show variety of computer generated triangles
informing learners of the objective	"What is an equilateral triangle?"
stimulating recall of prior learning	review definitions of triangles
presenting the stimulus	give definition of equilateral triangle
providing learning guidance	show example of how to create equilateral
eliciting performance	ask students to create 5 different examples
providing feedback	~~check all examples as correct/incorrect~~
assessing performance	provide scores and remediation
enhancing retention and transfer	show pictures of objects and ask students to identify equilaterals

From http://tip.psychology.org/gagne.html



Learner Control: Xer

- Xers expect a range of options, in terms of what they learn and how they learn it. They require autonomy and flexibility for their own learning. They demand a variety of instructional methods from which they can choose to learn, e.g., videotapes, self-paced modules, interactive CDs.
  - "Online gives me something to do when I'm bored with the professor."
  - "I respect myself more as a self-teacher."
    - Dziuban, Moskal, & Hartman (2005)

Learner-Centered Learning Principles
American Psychological Association, 1993)

Cognitive and Metacognitive Factors
1. Nature of the learning process
2. Goals of the learning process
3. Construction of knowledge
4. Strategic thinking
5. Thinking about thinking
6. Context of learning

Developmental and Social Factors
10. Developmental influences on learning
11. Social influences on learning

Individual Differences
12. Individual differences in learning
13. Learning and diversity
14. Standards and assessment

Motivational and Affective Factors
7. Motivational and emotional influences
8. Intrinsic motivation to learn
9. Effects of motivation on effort

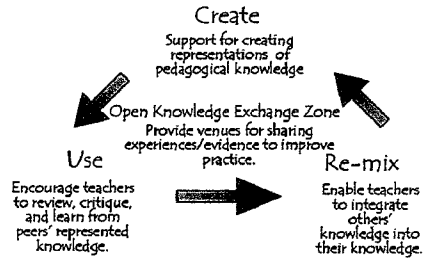
Learner-Centered on the Web
(Bonk & Cummings, 1998)

1. Safe Lrng Community:	**6, 11**
2. Foster Engagement:	**1- 6, 11.**
3. Give Choice:	**8, 9, 12**
4. Facilitate Learning:	**2, 9, 11.**
5. Offer Feedback:	**3, 6, 8, 11, 13.**
6. Apprentice Learning:	**3, 6, 7-9, 11, 13.**
7. Use Recursive Tasks:	**1, 3, 8-9, 10, 13.**
8. Use Writing & Reflection:	**3, 8, 12-13.**
9. Build On Web Links:	**2-4, 8-9, 12-14.**
10. Be Clear & Prompt Help:	**2, 9, 11, 14.**
11. Evaluate Dimensionally:	**1-5, 14.**
12. Personalize in Future:	**6, 8, 10-13.**

Constructivistic Teaching Principles
(Brooks, 1990)

1. **Build on student prior knowledge.**
2. **Make learning relevant.**
3. **Give students choice in learning activity.**
4. **Student autonomy & active lrng encouraged**
5. **Use of raw data sources & interactive materials**
6. **Encourage student dialogue**
7. **Seek elaboration on responses and justification**
8. **Pose contradictions to original hypothesis**
9. **Ask open-ended questions & allow wait time**
10. **Encourage reflection on experiences**

A Circle of Knowledge Building and Sharing



Promote these organically & sustainably

From the Web 2.0 to Learning 2.0

The original World Wide Web—the "Web 1.0" that emerged in the mid-1990s—vastly expanded access to information. The Open Educational Resources movement is an example of the impact that the Web 1.0 has had on education. But the Web 2.0, which has emerged in just the past few years, is reaching an even more far-reaching

Ok, Million Dollar Question: How do you motivate learner with technology?

I even reflected on this for a moment…I thought about the people I met

TEC-VARIETY Model for Online Motivation and Retention

1. Tone/Climate: Psych Safety, Comfort, Belonging
2. Encouragement, Feedback: Responsive, Supports
3. Curiosity: Fun, Fantasy, Control
   ...
4. Variety: Novelty, Intrigue, Unknowns
5. Autonomy: Choice: Flexibility, Opportunities
6. Relevance: Meaningful, Authentic, Interesting
7. Interactive: Collaborative, Team-Based, Community
8. Engagement: Effort, Involvement, Excitement
9. Tension: Challenge, Dissonance, Controversy
10. Yields Products: Goal Driven, Products, Success, Ownership

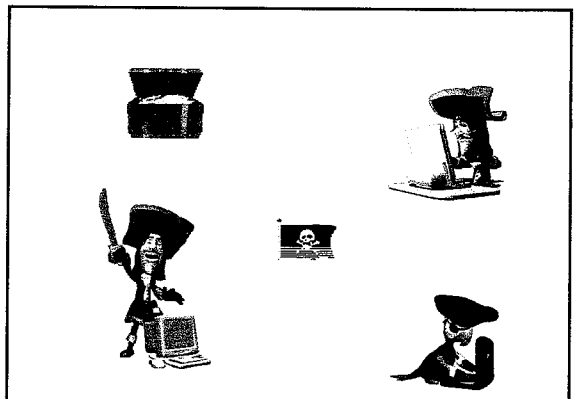
Intrinsic Motivation

"...innate propensity to engage one's interests and exercise one's capabilities, and, in doing so, to seek out and master optimal challenges

(i.e., it emerges from needs, inner strivings, and personal curiosity for growth)

See: Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* NY: Plenum Press.

	Low Risk	High Risk
1. Risk	←	→
	Easy to Embed	Extensive Planning
2. Time	←	→
	Free or Inexpensive	Enterprise Licenses
3. Cost	←	→
	Instructor-Focus	Student-Focus
4. Student-Centered	Low ←	→ High



1. Tone/Climate:

A. Coffee House Expectations

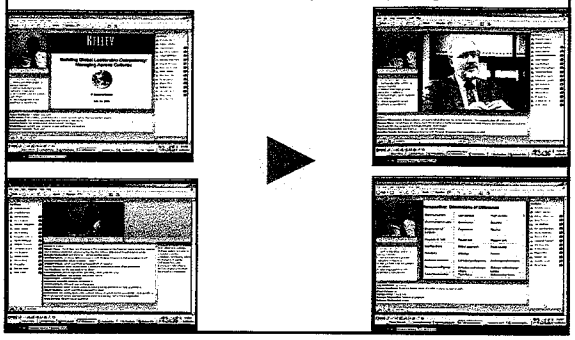
1. Have everyone post 2-3 course expectations
2. Instructor summarizes and comments on how they might be met

B. Public Commitments: Have students share how they will fit the coursework into their busy schedules

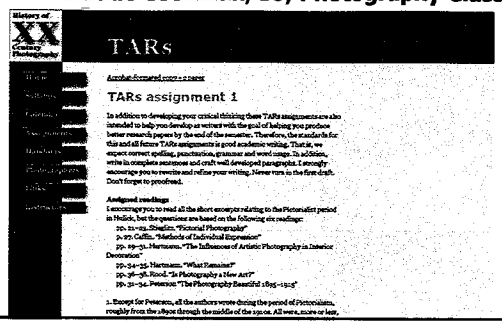
1. Tone/Climate: C. Video Course Intros

(examples from Northern Virginia Community College and Indiana University KD (online MBA) program)

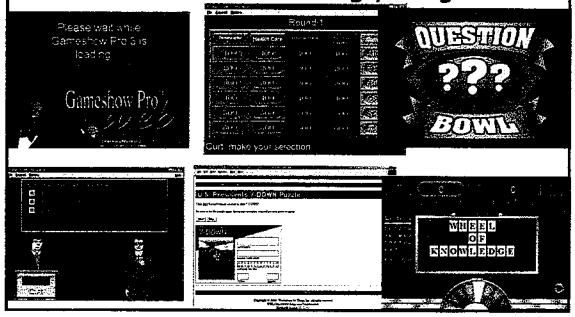
2. Encouragement, Feedback, etc.:
A. Instructor Presentation in Synchronous Sessions (Breeze, Elluminate, WebEx, etc.)



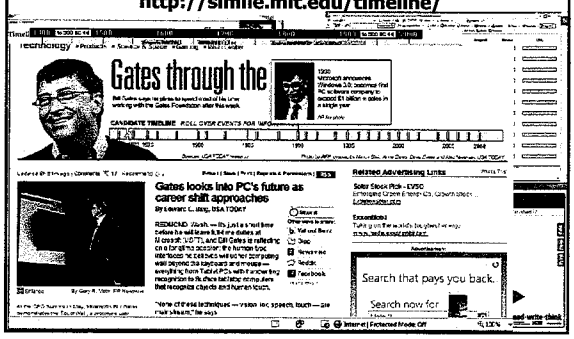
2. Encouragement, Feedback, etc.:
B. Thinking About the Readings (TARS) JIiT; Claude Cookman, IU, Photography Class



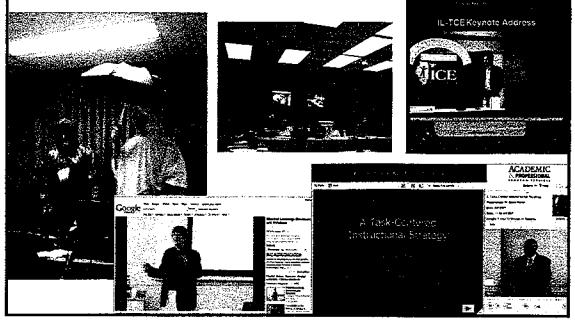
3. Curiosity, Fun: A. Games
e.g., Online Jeopardy Game
Games2Train: The Challenge; Thiagi.com



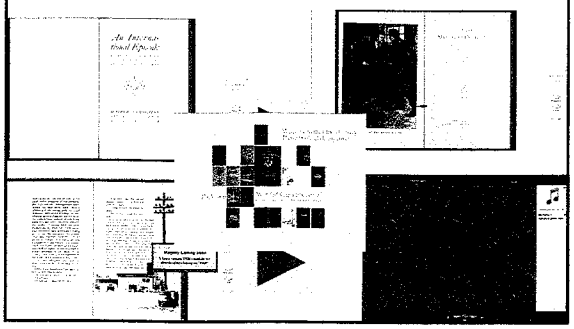
3. Curiosity, Fun:
B. Exploration and Demonstration: Virtual Tours and Timelines (HyperHistory)
http://simile.mit.edu/timeline/



4. Variety, Novelty:
A. Video Streamed Lectures & Expert Commenting

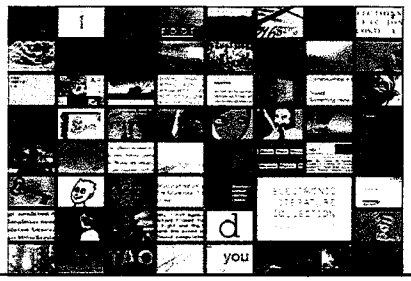


5. Autonomy, Choice: A. Read, Listen, etc. to online books (e.g., "An International Episode" by Henry James)



5. Autonomy, Choice: B. Online Literature Search (Class Google Jockeys)

The Electronic Literati, in Search of a Voice, June 1, 2007, Chronicle of Higher Education, Jeffrey Young (links to text, soundtracks, video clips, etc.)



5. Autonomy, Choice:

C. Volunteer Technology Demos (Bonk, 1996)

- Take students to a computer lab.
- Have students conduct a technology demonstration that relates to something from the class (replaces an assignment).
- Include handout
- Debrief

5. Autonomy, Choice:

D. Clickers; Innovation is but one click away...

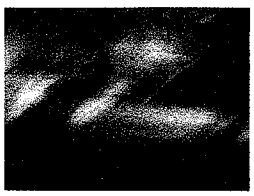
5. Autonomy, Choice:

E. Multiple Topic Forums or Task Options

- Generate multiple discussion prompts and ask students to participate in 2 out of 3
- Provide different discussion "tracks" (much like conference tracks) for students with different interests to choose among
- List possible topics and have students vote (students sign up for lead diff weeks)
- Have students list and vote.

What have you learned so far?

- Solid and Fuzzy in groups of two to four



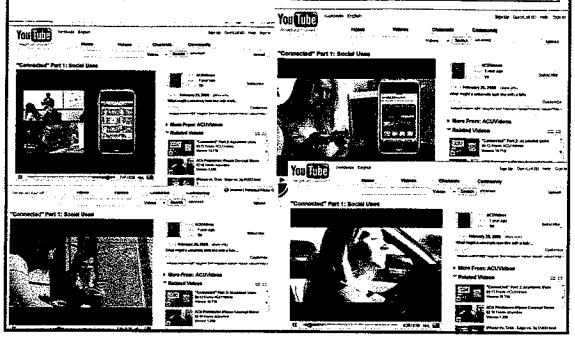
6. Relevance, Meaningfulness: A. Authentic Data Analysis

Jeanne Sept, IU, Archaeology of Human Origins; Components: From CD to Web

- A set of research q's and problems that archaeologists have posed about the site
- A complete set of data from site
- Students work collab to interpret age of site
- Interpret of ancient environments
- Analyze artifacts/fossils from site

6. Relevance, Meaningfulness: B. Mobile News (New York Times): A new way to take your news with you on the iPhone and iPod touch

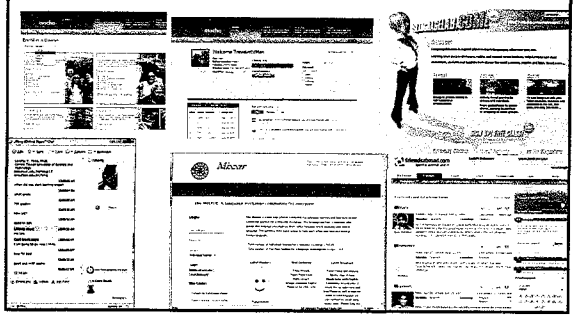
Connected (Part 1/2) from Abilene Christian Univ: http://www.youtube.com/watch?v=Tp8fHqp0xhU



6. Relevance, Meaningfulness: C. 99 Second Quotes (L = Cost, M = Risk, M = Time)

- Everyone brings in a quote that they like from the readings
- You get 99 seconds to share it and explain why you choose it in a sync chat or videoconference
- Options
  - Discussion wrapped around each quote
  - Small group linkages—force small groups to link quotes and present them
  - Debate value of each quote in an online forum

7. Interactive, Collaborative: A. Online Language Learning (Mixxer, Livemocha, Friends Abroad)



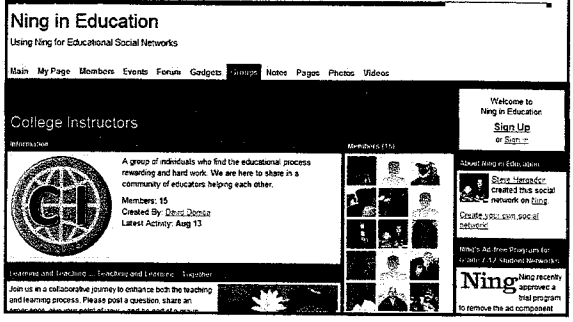
7. Interactive, Collaborative: B. Discussion: Starter-Wrapper (Hara, Bonk, & Angeli, 2000)

1. Starter reads ahead and starts discussion and others participate and wrapper summarizes what was discussed.
2. Start-wrapper with roles--same as #1 but include roles for debate (optimist, pessimist, devil's advocate).

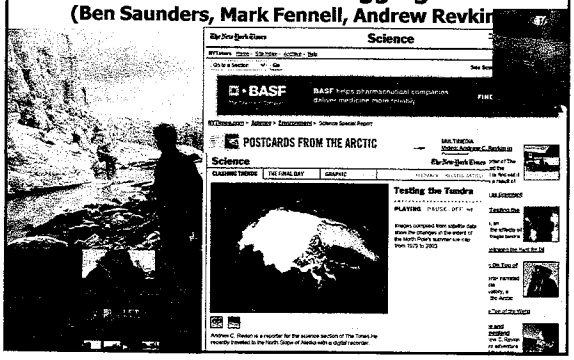
C. Alternative: Facilitator-Starter-Wrapper (Alexander, 2001)

Instead of starting discussion, student acts as moderator or questioner to push student thinking and give feedback

7. Interactive, Collaborative: D. Google Docs, Ning, Google Groups, MSN Groups, Yahoo Groups, Diigo, etc.



8. Engagement, Effort: A. Adventure Blogging (Ben Saunders, Mark Fennell, Andrew Revkin



8. Engagement, Effort:
B. Just-In-Time Syllabus

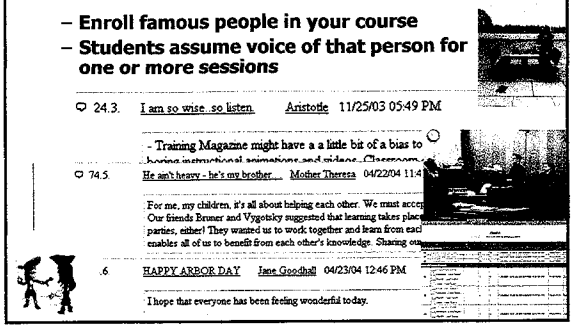
(Raman, Shackelford, & Sosin) http://ecedweb.unomaha.edu/jits.htm
http://ecedweb.unomaha.edu/jits.htm

Syllabus is created as a "shell" which is thematically organized and contains print, video, and web references as well as assignments. (Goals = critical thinking, collab, develop interests)

e.g., To teach or expand the discussion of supply or elasticity, an instructor might add new links in the Just-in-Time Syllabus to breaking news about *rising* gasoline prices.

9. Tension, Challenge, etc.:
A. Online Role Play of Famous People, Mock Trial, Debates, etc.

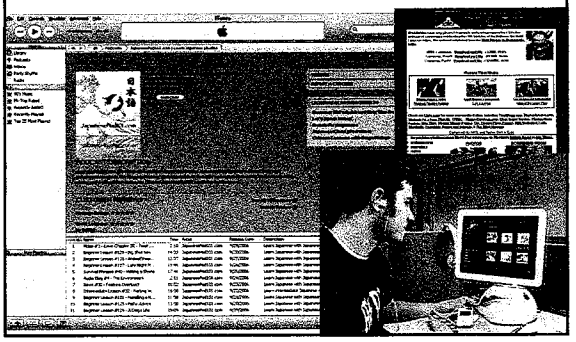
- **Enroll famous people in your course**
- **Students assume voice of that person for *one or more sessions***



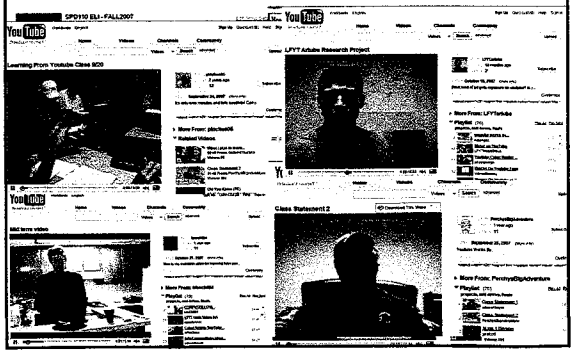
9. Tension, Challenge, etc.:
B. Electronic Guests & Mentoring

(Simon Fraser University News:
http://www.sfu.ca/mediapr/sfnews/2001/Sept6/hightech.html)

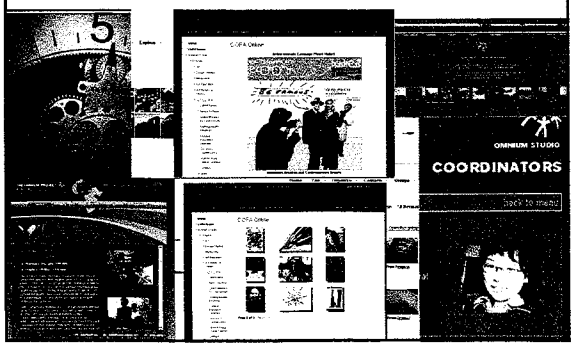
10. Yields Products, Goals:
A. Produce a Podcast
JapanesePod, Arabic online, etc.



10. Yields Products, Goals:
B. Produce a YouTube Video



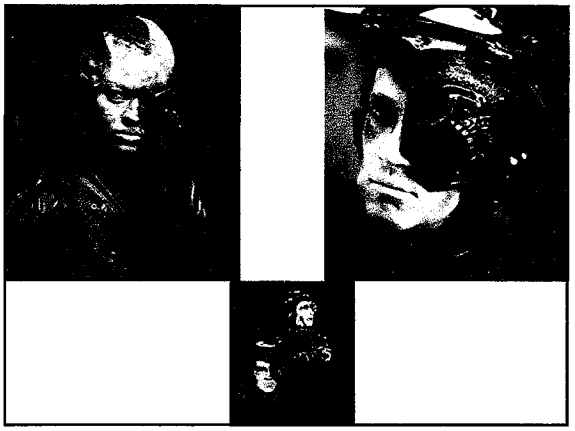
10. Yields Products, Goals:
C. Online Portfolios or Galleries (Flickr, Omnium)

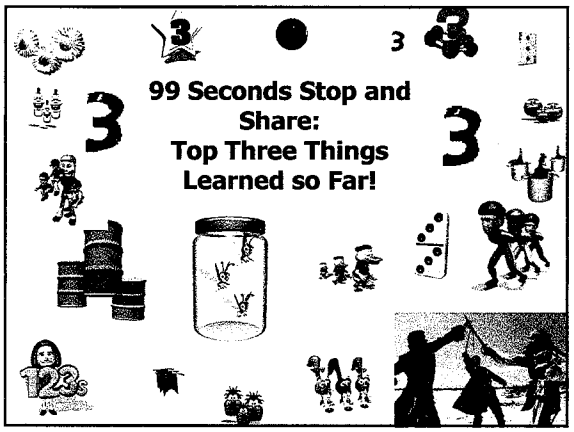


10. Yields Products, Goals:
D. Film Festivals and Competitions

What can we say about technology for teaching???

- It is everywhere!!!!!!!!
- Resistance is futile!!!!!!!

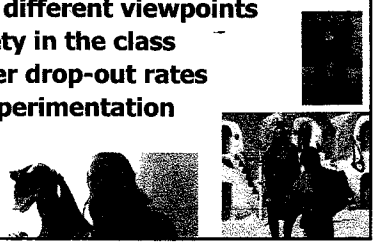




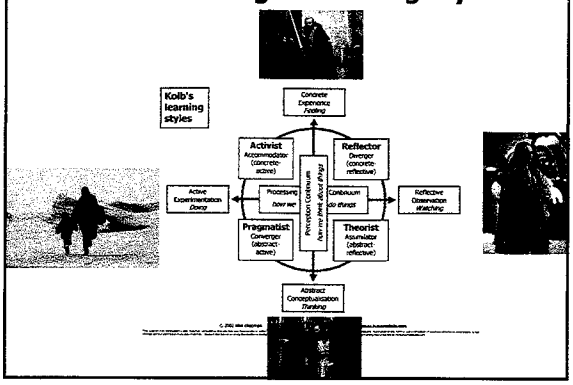
Part III. Addressing Learning Styles

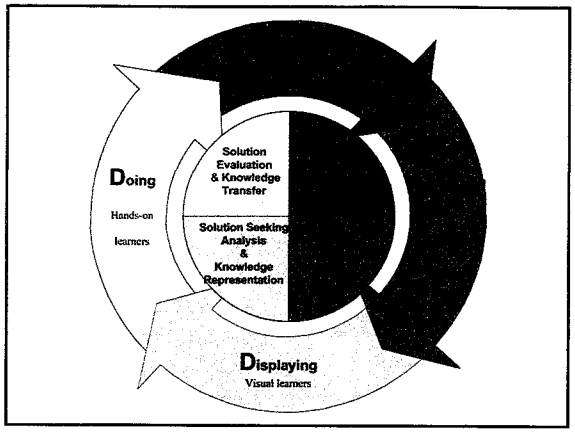
Why Address Learning Styles?

- Promotes reflection on teaching
- Move from just one mode of delivery
- View from different viewpoints
- Offer variety in the class
- Might lower drop-out rates
- Fosters experimentation



The Blending of Learning Styles

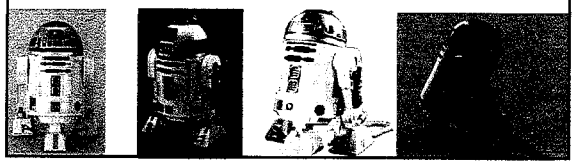




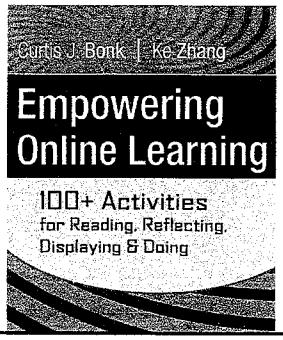
Dean of IU School of Education

The R2D2 Method

1. Read (Auditory and Verbal Learners)
2. Reflect (Reflective Learners)
3. Display (Visual Learners)
4. Do (Tactile, Kinesthetic, Exploratory Learners)

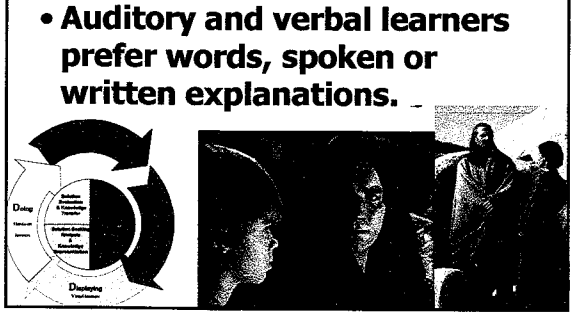


R2D2 Book Project

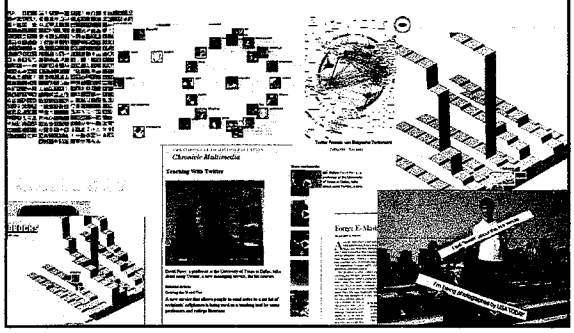


1. Auditory or Verbal Learners

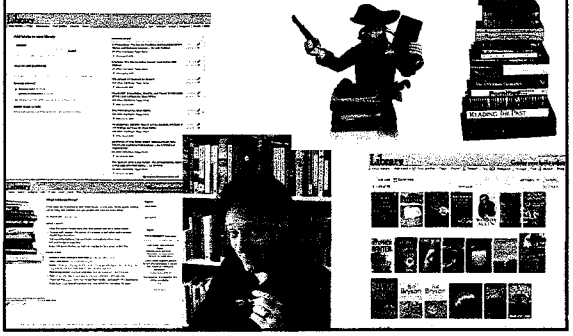
- Auditory and verbal learners prefer words, spoken or written explanations.



Read 1a. Course Announcements (e.g., Teaching with Twitter)

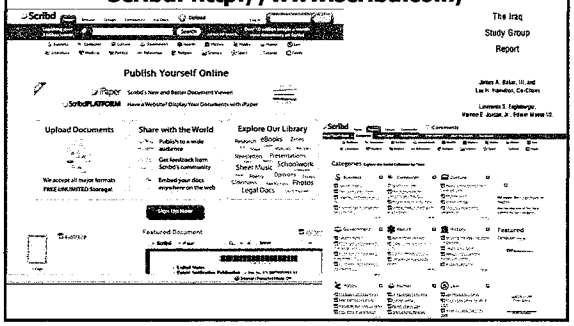


Read 1b. Book reviews and critiques (e.g., LibraryThing)

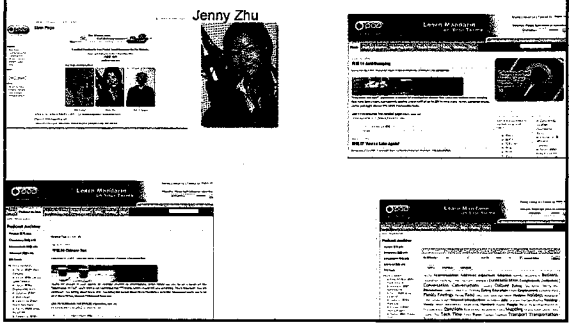


Read 1c. Find and Post Online Documents; Scribd

Scribd: http://www.scribd.com/

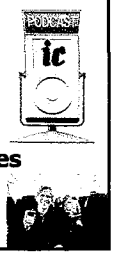


Read 1d. Podcast for Language Learning (ChinesePod—learn Mandarin)



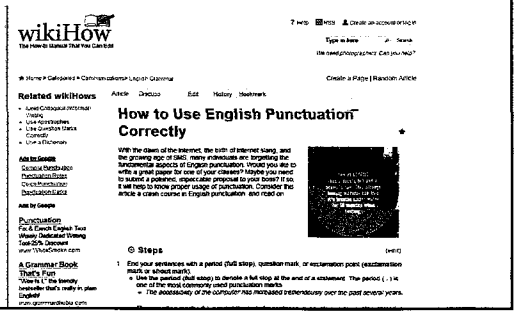
Read 1e. Educational Applications of Podcasting (Essex, 2006, Leftwich, 2007)

1. Recordings of lectures (Coursecasting)
2. Supplemental textbook or entire book
3. Student projects
4. Interviews
5. Language lessons
6. Oral reports
7. K-12 classroom interactions
8. Downloadable library of resources
9. Recordings of performances

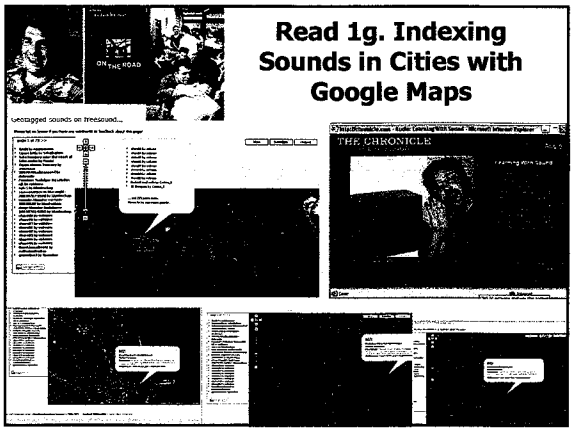


Read 1f. Wiki Steps on How to do Something: Wikihow

http://www.wikihow.com/



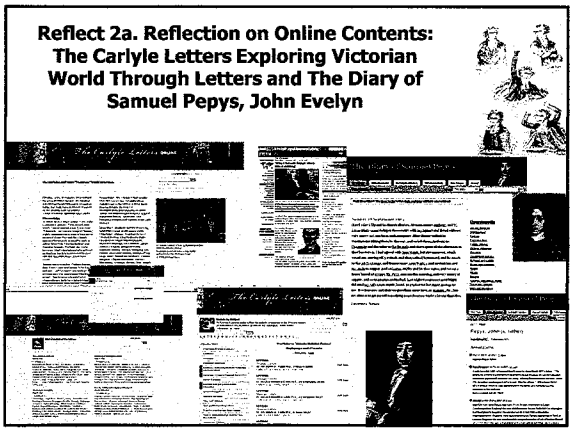
Read 1g. Indexing Sounds in Cities with Google Maps



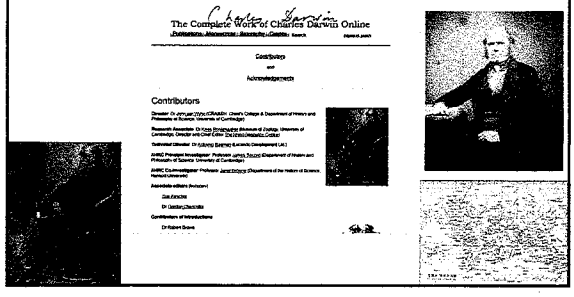
2. Reflective and Observational Learners

- Reflective and observational learners prefer to reflect, observe, view, and watch learning; they make careful judgments and view things from different perspectives

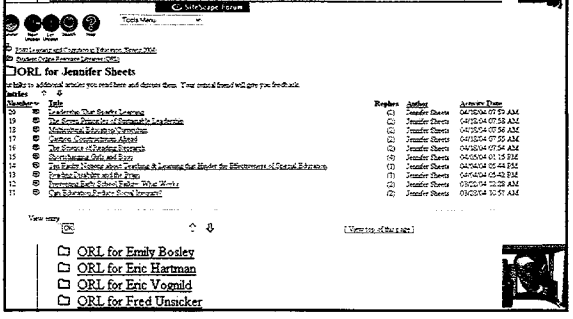
Reflect 2a. Reflection on Online Contents: The Carlyle Letters Exploring Victorian World Through Letters and The Diary of Samuel Pepys, John Evelyn



Reflect 2b. Online Portal Explorations (e.g., The Complete Works of Charles Darwin)



Reflect 2c. ORL or Library Day (L = Cost, M = Risk, M/H = Time) (Bonk, 1999)



Reflect 2d. Paired Weblog Critiques

Student Weblogs
EDER679.20 – Blended Learning

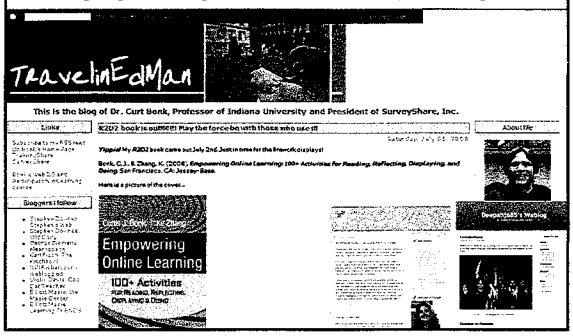
Instructors
Randy Garrison – Blended Learning in Higher Education
Norm Vaughan – Inquiry through Blended Learning

Online Guests
Curtis Bonk – TravelinEdMan

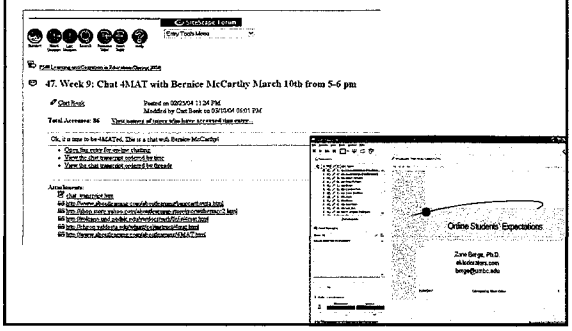
Students

Article	Student Critique	Student Peer Review
Arbaugh, J.B. (2007). *Does the Community of Inquiry Framework Predict Outcomes in Online MBA Courses?*	Stephen Moses	Lorraine Ryan
	Carolyn Pauwliko	Karen Leppard
	Lin Yu	Flora Liu
	Alex Beierley	Lori Atkinson
Meyer, K.A. (2003). Face-to-Face versus	Lorraine Ryan	Paul Anderson

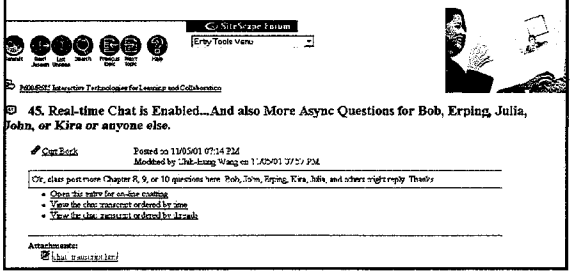
Reflect 2e. Partner & Team Blogs (especially English writing class)



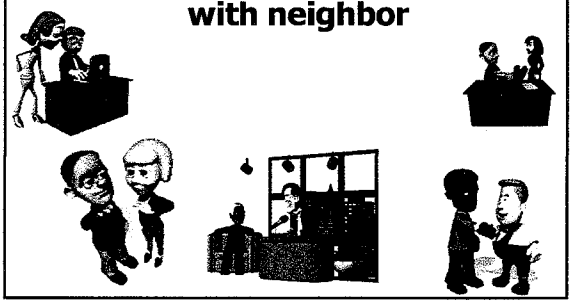
Reflect 2f. Reuse Blog, Chat Transcripts, Presentations



Reflect 2g. Practitioner Feedback: Asynchronous Threaded Discussion plus Sync Expert Chat (e.g., Starter-Wrapper + Sync Guest Chat) (L/M = Cost, M = Risk, M = Time)

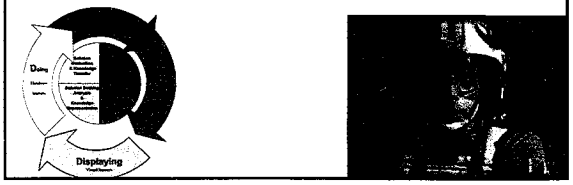


Half-Way...Brief Intermission Please Share Best Idea so far with neighbor



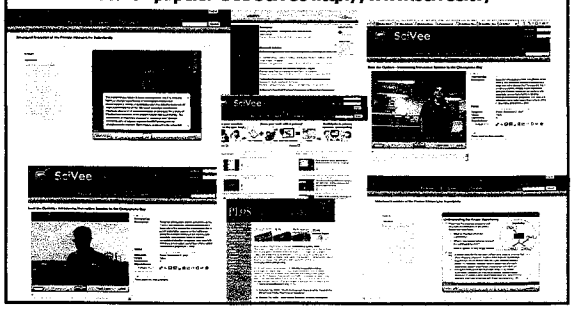
3. Visual Learners

- Visual learners prefer diagrams, flowcharts, timelines, pictures, films, and demonstrations.



Display 3a. Pubcasts! (videos of scientific papers and science)

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/

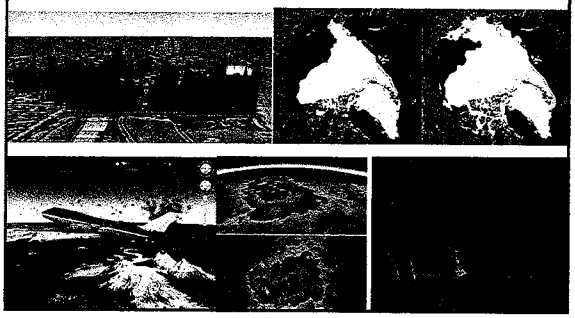


Display 3b. Online Video
(e.g., YouTube, TeacherTube, CurrentTV)

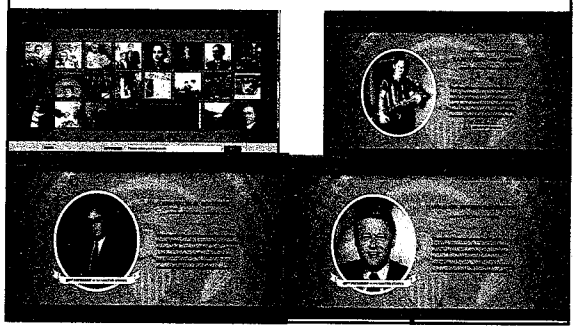
CHARLES McGRATH, Published: July 8, 2008, A Private Dance? Four Million Web Fans Say No, The New York Times

Display 3c. Anchored Instruction (find anchoring event (YouTube, CNN,

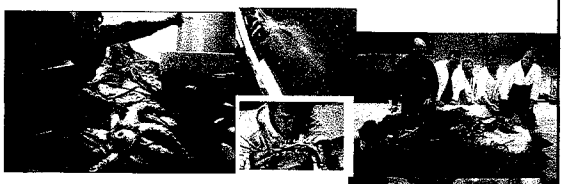
Display 3d. Map Mash-ups
(e.g., Shakespeare's Global Globe; PopSci, June 13, 2008, Michael Behar GOOGLE EARTH ENVIRONMENT GUIDE THE FREE SOFTWARE FROM GOOGLE GIVES SCIENTISTS A NEW WORLD VIEW



Display 3e. Online Timelines
(US Presidents)

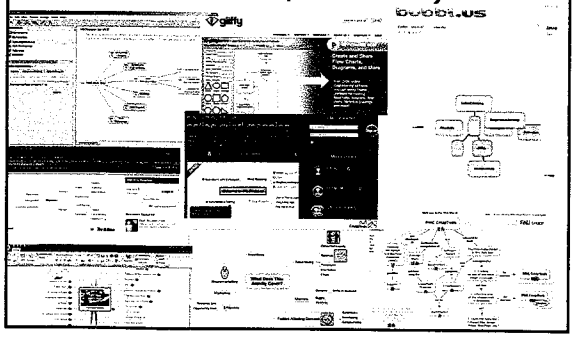


Display 3f. Tracking Live Internet Events (e.g., Thawing: A Colossal of an Idea)
(caught Feb. 2007; thawed April 30, 2008)



Deep-Sea Behemoth
Captain John Bennett examines the world's fi colossal squid on board his New Zealand fishi in the Ross Sea near Antarctica. The gigantic s world record 1,089 pounds. After being frozen scientists at New Zealand's national museum further study.

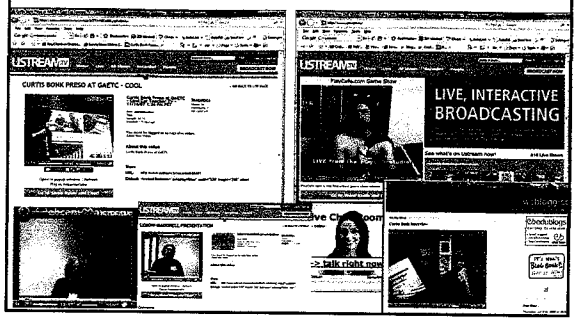
Display 3g. Concept Mapping Tools
(VUE, Bubbl.us, Cmap, Freemind, Gliffy, Mindmeister, or Mindomo)



Display 3h. Historical Documents discoverbabylon.org

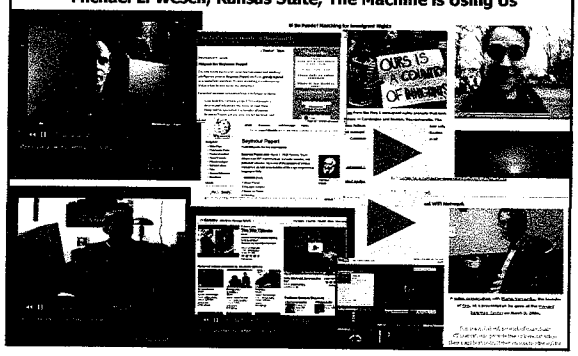
- In its final form, the multi-player game will let you march through three-dimensional recreations of the first city-states, around 3000 B.C., the first empires, around 2300 B.C., and finally the famous Iron Age empire of Assyria...offers three-dimensional walk-throughs of sites in the Valley of the Kings.

Display 3i. You Ustreamed my Ustream: Now that's a Twitter of an Idea



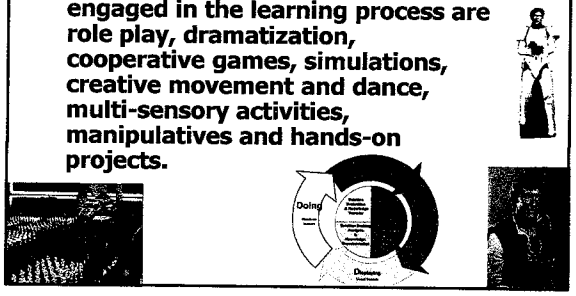
Display 3j. Vlogging (Video Blogging) e.g., Andy Calvin's Waste of Bandwidth

Michael L. Wesch, Kansas State, The Machine is Using Us



4. Tactile/Kinesthetic Learners

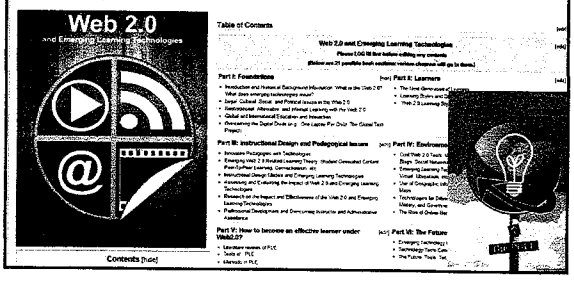
- Tactile/kinesthetic senses can be engaged in the learning process are role play, dramatization, cooperative games, simulations, creative movement and dance, multi-sensory activities, manipulatives and hands-on projects.



Do 4a. Wikibooks: International Collaboration (Web 2.0 and Emerging Learning Technologies (The WELT))

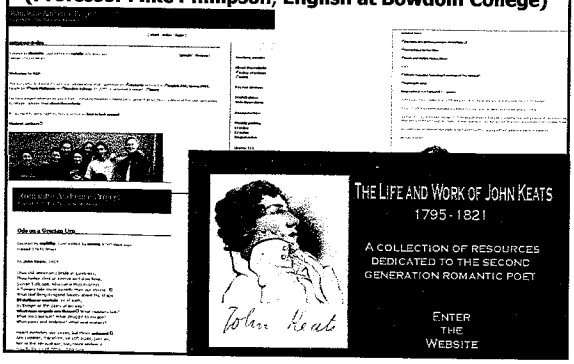
Web 2.0 and Emerging Learning Technologies

From Wikibooks, the open-content textbooks collection

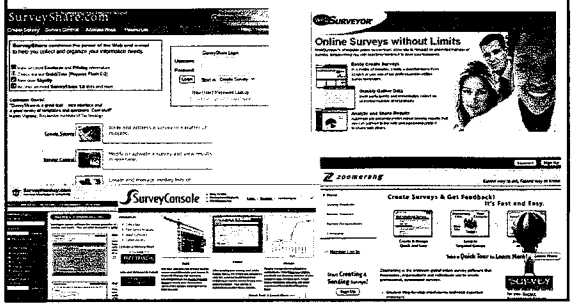


Do 4b. Wiki: Romantic Poetry Project

(Professor Mike Phillipson, English at Bowdoin College)

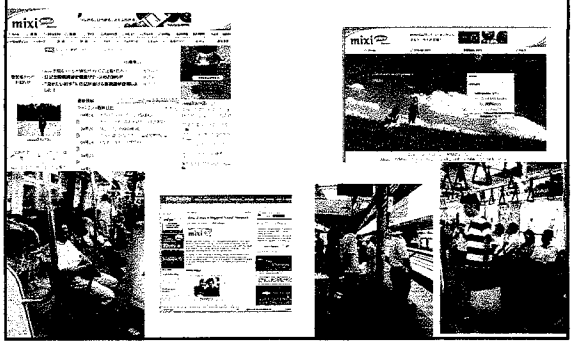


Do 4c. Survey Research and Market Analysis
(e.g., WebSurveyor, Zoomerang, SurveyShare, SurveyKey)

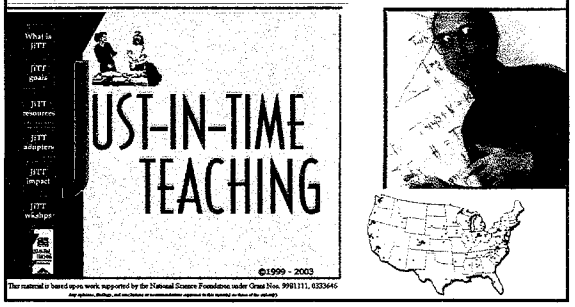


Do 4d. Virtual Worlds/Virtual Reality/MMOG
Wednesday, August 30, 2006
Harvard Law School (Charles & Rebecca Nesson)
Chronicle of Higher Ed (open to the public)
http://chronicle.com/daily/2006/08/2006083001t.htm

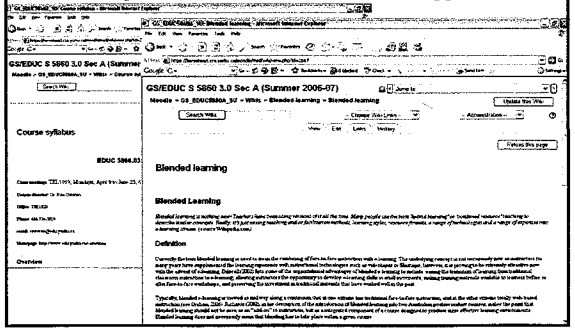
Do 4e. Mobile Learning and Social Networking
(e.g., Mixi, Yayoi Anzai, Professor Japan)



Do 4f. Online Warm-ups Activities
Just-In-Time-Teaching (JiTT)
http://webphysics.iupui.edu/jitt/jitt.html



Do 4g. Syllabus, Glossary, etc. in wiki: Students sign up for tasks
(Ron Owston, York University)



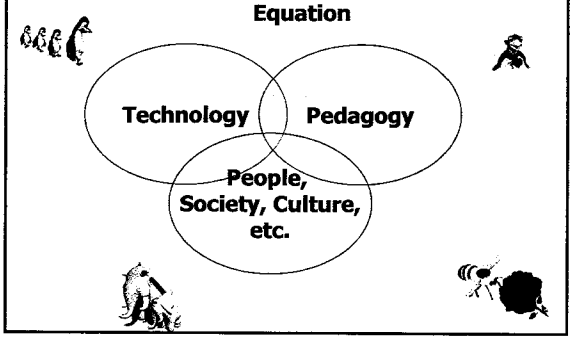
Do 4h. Cool Resource Provider
(Bonk, 2004) Capture and Videostream Lectures
(e.g., Apreso CourseCaster)

- **Have students sign up to be a cool resource provider once during the semester.**
- **Have them find additional paper, people, electronic resources, etc.**
- **Share and explain what found with class via synchronous meeting or asynchronous discussion post.**

Poll #3: How many ideas did you get from this morning?

a. None—you are an idiot.
b. 1 (and it is a lonely #).
c. 2 (it can be as bad as one).
d. 3-5
e. 6-10
f. Higher than I can count!

It is both Nature AND Nurture as well as PEOPLE!!! Technology is just part of the Equation



Next up: The MATRIX!!!!!!!!!!!

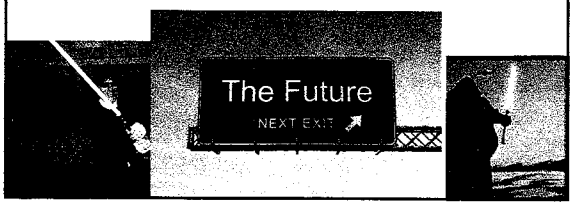
- Mobile
- Auditory
- Thought-stimulating
- Reflective/Real-World
- vIsually Interactive
- eXtremely Hands-on

It's Over...

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

A.Yes
B. No
C. Not sure

It is the End!!!

Try the R2D2 Method!!!
Try TEC-VARIETY!!!

Sample papers at: http://www.publicationshare.com/
Archived talks at: http://www.trainingshare.com/