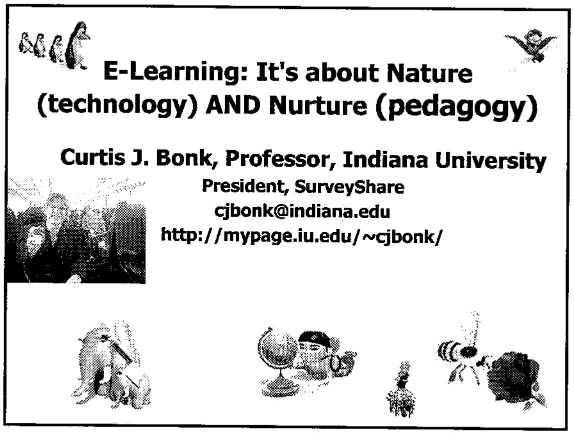
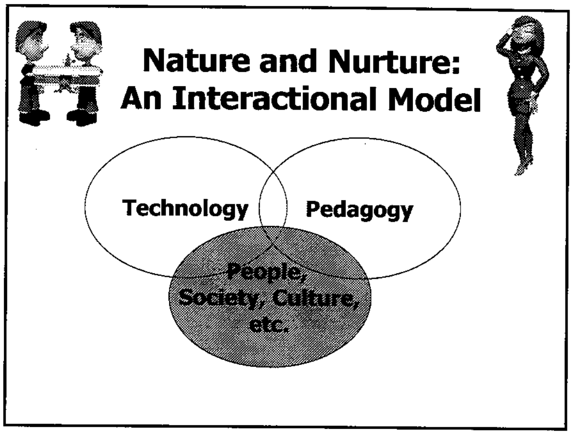


E-Learning: It's about Nature (technology) AND Nurture (pedagogy)

Curtis J. Bonk, Professor, Indiana University
President, SurveyShare
cjbonk@indiana.edu
http://mypage.iu.edu/~cjbonk/

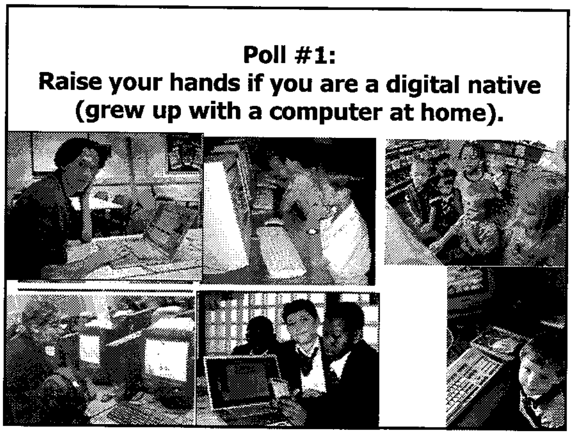


Nature and Nurture: An Interactional Model

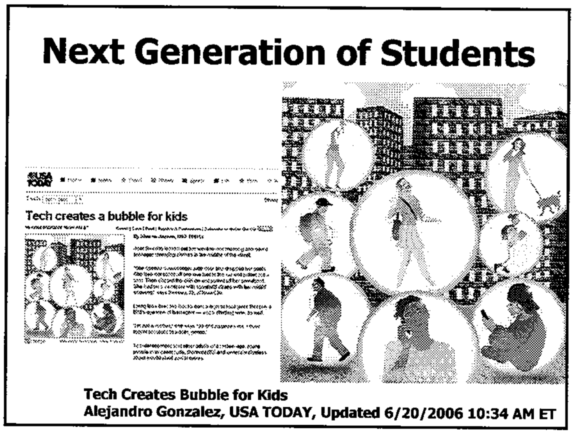
Technology

Pedagogy

People, Society, Culture, etc.



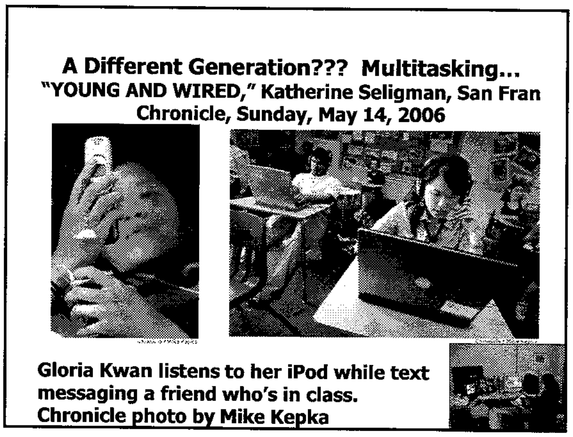
Poll #1: Raise your hands if you are a digital native (grew up with a computer at home).



Next Generation of Students

Tech creates a bubble for kids

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



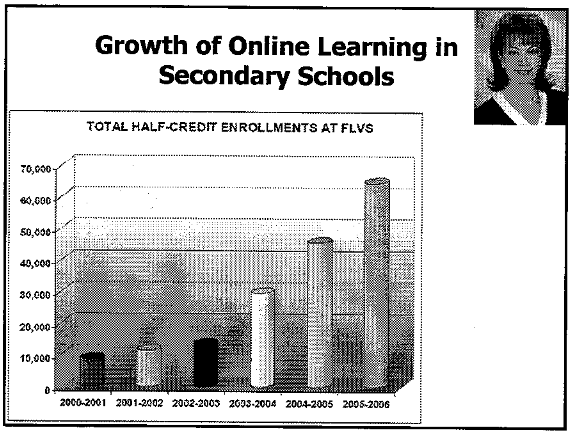
A Different Generation??? Multitasking…

"YOUNG AND WIRED," Katherine Seligman, San Fran Chronicle, Sunday, May 14, 2006

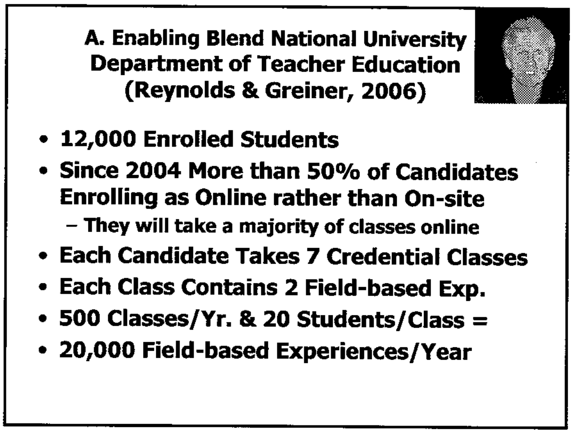
Gloria Kwan listens to her iPod while text messaging a friend who's in class. Chronicle photo by Mike Kepka

INFORMATION TECHNOLOGY

E-Mail Is for Old People

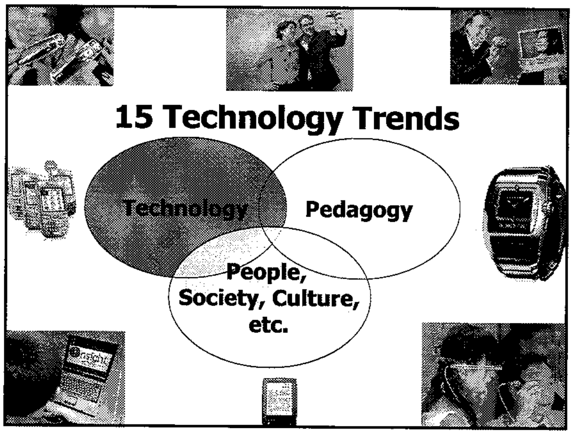


Growth of Online Learning in Secondary Schools



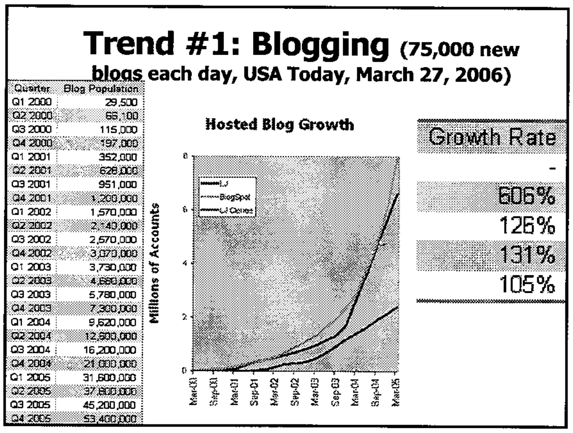
A. Enabling Blend National University Department of Teacher Education (Reynolds & Greiner, 2006)

- **12,000 Enrolled Students**
- **Since 2004 More than 50% of Candidates Enrolling as Online rather than On-site**
  - **They will take a majority of classes online**
- **Each Candidate Takes 7 Credential Classes**
- **Each Class Contains 2 Field-based Exp.**
- **500 Classes/Yr. & 20 Students/Class =**
- **20,000 Field-based Experiences/Year**



15 Technology Trends

Technology
Pedagogy
People, Society, Culture, etc.



Trend #1: Blogging (75,000 new blogs each day, USA Today, March 27, 2006)

Quarter	Blog Population
Q1 2000	29,500
Q2 2000	66,100
Q3 2000	115,000
Q4 2000	197,000
Q1 2001	352,000
Q2 2001	626,000
Q3 2001	951,000
Q4 2001	1,200,000
Q1 2002	1,570,000
Q2 2002	2,140,000
Q3 2002	2,570,000
Q4 2002	3,070,000
Q1 2003	3,730,000
Q2 2003	4,680,000
Q3 2003	5,780,000
Q4 2003	7,300,000
Q1 2004	9,620,000
Q2 2004	12,600,000
Q3 2004	16,200,000
Q4 2004	21,000,000
Q1 2005	31,600,000
Q2 2005	37,800,000
Q3 2005	45,200,000
Q4 2005	53,400,000

Hosted Blog Growth
Millions of Accounts
0
2
4
6
8
LJ
BlogSpot
LJ Clones
Mar-00
Sep-00
Mar-01
Sep-01
Mar-02
Sep-02
Mar-03
Sep-03
Mar-04
Sep-04
Mar-05

Growth Rate
-
606%
126%
131%
105%

Blogging Questions

1. **Who has a blog? Any for a specific class?**
2. **Who regularly reads other people's blogs?**
3. **Who assigns blogging tasks?**
4. **Who has created a video blog?**
5. **Who thinks it is an utter waste of time to blog?**

EDTECH FOCUS ON K-12

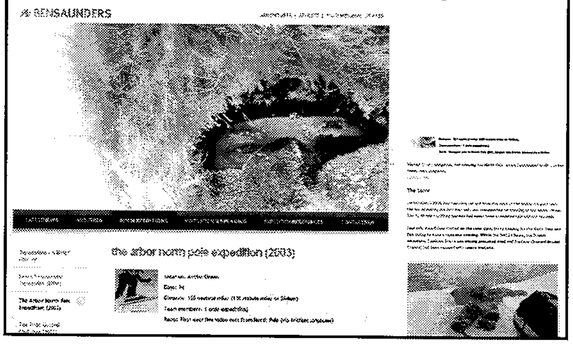
Education

Students, officials locking horns over blogs

What is posted from home brings punishment at school

Adventure Blogging

(Ben Saunders, Mark Fennell)

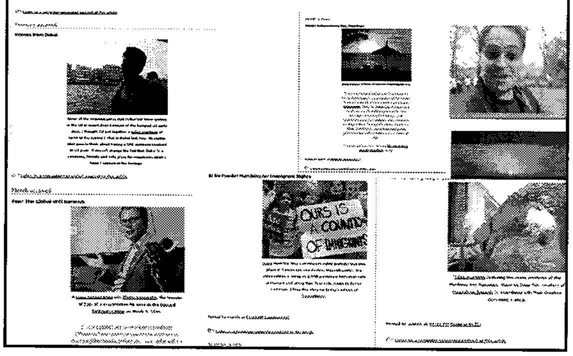

BENSAUNDERS
the arbor north pole expedition (2003)

Use of Weblogs

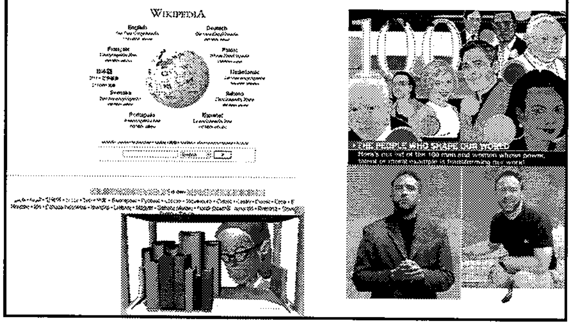
(especially English writing class)

1. Instructor or Tutor blog: resources, information, space to chat
2. Learner blog: reflections, sharing links and pics, fosters ownership of learning
3. Partner blog: work on team projects or activities
4. Class blog: international exchanges, projects, PBL
5. Revision: review and explode sentences from previous posts, add details
6. Nutshell: summarize themes or comments across blogs
7. Blog on blog: reflections on feelings, confusions, and experiences with blogs

Vlogging (Video Blogging)


OURS IS A COUNTRY OF IMMIGRANTS

Trend #2. Wikis


WIKIPEDIA
English
Deutsch
Français
Polski
日本語
Nederlands
Svenska
Español
Português
100
THE PEOPLE WHO SHAPE OUR WORLD

Wiki Questions

1. Who regularly reads Wikipedia articles just for fun?
2. Who regularly reads Wikibooks?
3. Who seeks Wikipedia for content?
4. Who has edited or written new articles on Wikipedia or Wikibooks?
5. Who thinks it is ok for college students to cite from Wikipedia?

How use in teaching

1. Provide space for free writing
2. Debate course topics and readings
3. Share resources (websites, conferences, writing, etc.)
4. Maintain group progress journal
5. Require group or class essay
6. Have student revise Wikipedia pages
7. Write a wikibook

For Teachers New to Wikis

- Wikis are free, online writing spaces.
- Wikis use simple formatting rules, so no HTML understanding required.
- Highly collaborative composing and creativity
- Authors do not claim ownership
- Published online
- Wikis provide a history and anyone can revisit prior versions of text

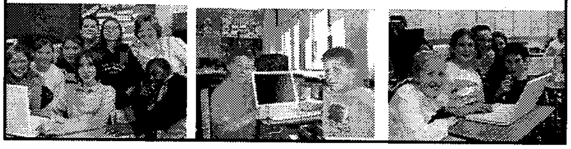
Trend #3. Podcasting, Webcasting, and Coursecasting (Adam Curry; www.dailysourcecode.com)

Podcast Questions

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

Student Podcast

"Just the word 'podcast' scares a lot of teachers away," Ms. Schrock said. "There are a lot of misconceptions."
"All you need is a computer, access to the Internet and a microphone that you can buy at Toys 'R' Us," Mr. Warlick said. "I listen to podcasts on my computer." (NY Times, Jan 25, 2006)



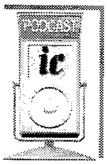
Language Learning (ChinesePod—learn Mandarin)

April 29, 2006
VideoHotpot6 - The Tone Police
ChinesePod on CNN
RESULTS FOR:
JENNY ZHU
CNN
KEN CARROLL
CNN

Educational Applications

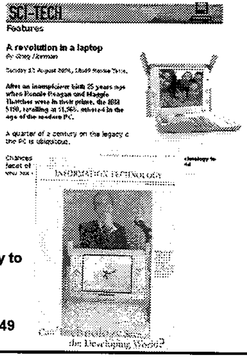
(Essex, 2006; Leftwich, 2007)

1. Recordings of lectures, speeches
2. Supplemental textbook or entire book
3. Student projects
4. Virtual interviews
5. Language lessons
6. School announcements
7. Oral reports
8. K-12 classroom interactions
9. Downloadable library of resources
10. Recordings of performances



Trend #4. $100 Laptop

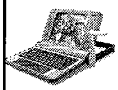
The project aims to build peer-to-peer communications



SCI-TECH

Features

A revolution in a laptop



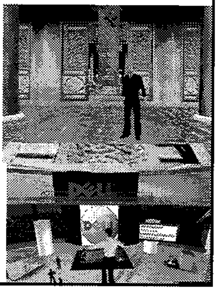
The CM1: Taking technology to the developing world
A revolution in a laptop
By Greg Norman
Sunday 13 August 2006, 18:49
Makka Time, 15:49 GMT

Negroponte says the new laptop is designed to be kid-friendly

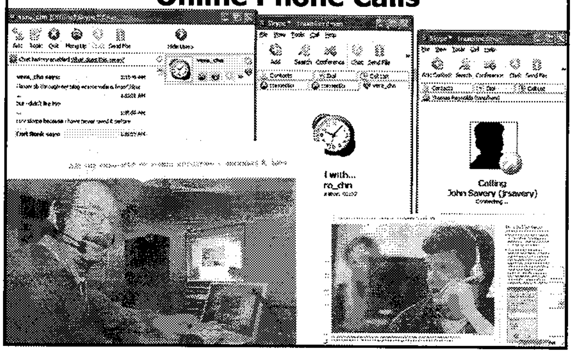
OLPC aims to turn the tide of urban poverty

Trend #5: Virtual Worlds/Virtual Reality/MMOG

First Course in a Virtual World (Second Life)
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



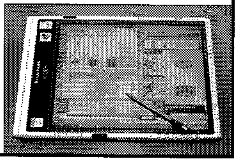
Trend #6. Skype and Google Talk: Online Phone Calls



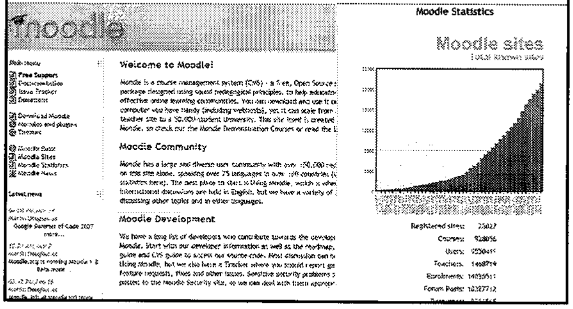
Trend #7. Digital Books

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

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



Trend #8. OpenSource Tools



moodle

Welcome to Moodle!

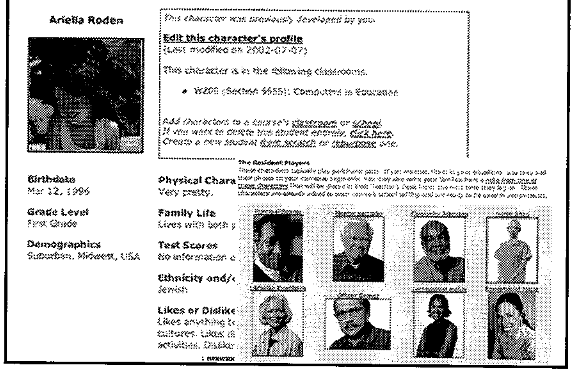
Moodle Community

Moodle Development

Moodle Statistics

Moodle sites

Trend #9. Simulations (SimTeacher)



Ariella Roden

This character was previously developed by you.

Edit this character's profile
(Last modified on 2002-07-07)

This character is in the following classrooms.

- W200 (Section 5555): Computers in Education

Add characters to a course's classroom or school.
If you want to delete this student entirely, click here.
Create a new student from scratch or repurpose one.

Birthdate
Mar 12, 1996

Grade Level
First Grade

Demographics
Suburban, Midwest, USA

Physical Chara
Very pretty.

Family Life
Lives with both

Test Scores
No information

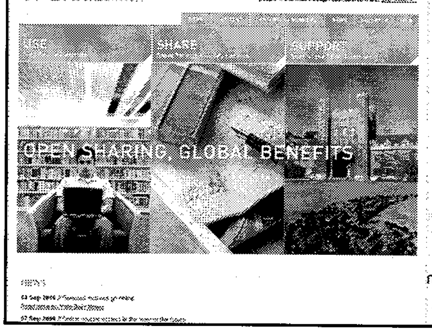
Ethnicity and/
Jewish

Likes or Dislike
Likes anything
cultures. Likes
activities. Dislike

The Resident Players

Trend #10. Open CourseWare

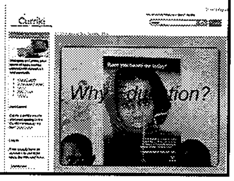
Tufts OpenCourseWare Project



OPEN COURSEWARE CONSORTIUM
USE
SHARE
SUPPORT
OPEN SHARING, GLOBAL BENEFITS
NEWS

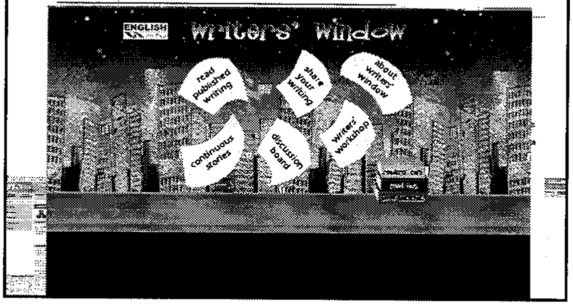
Technology in the Developing World (Kirkpatrick, Dec 22, 2006, CNN Money)

- 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.



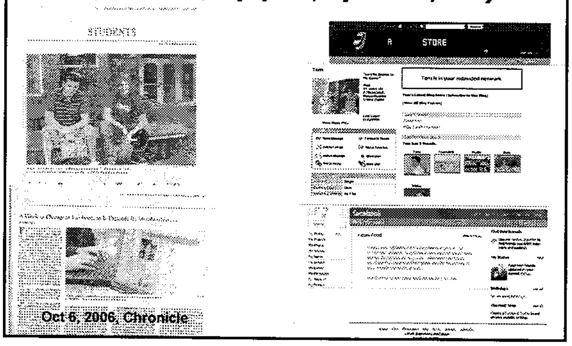
Curriki
Why Education?

Trend #11. Portals and Free and Open Resources



ENGLISH
Writers' Window
read published writing
share your writing
about writers' window
continuous stories
discussion board
writers' workshop

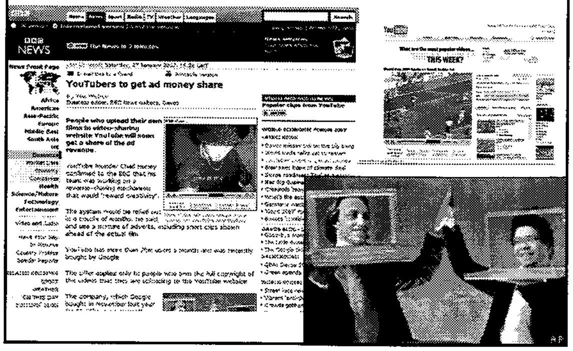
Trend #12. Social Networking Software (Facebook, MySpace, CyWorlds, etc.)



STUDENTS
STORE
facebook

Oct 6, 2006, Chronicle

Trend #13. Participatory Video Repositories

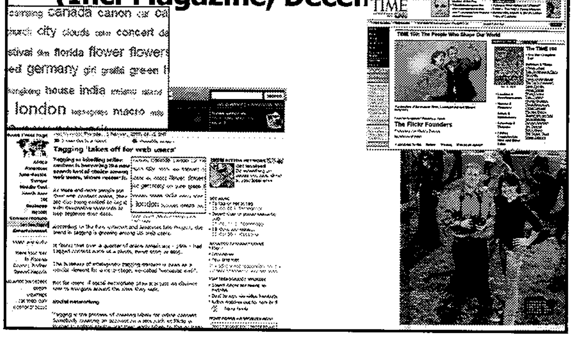


BBC NEWS
YouTube
THIS WEEK?

YouTubers to get ad money share

People who upload their own films to video-sharing website YouTube will soon get a share of the ad revenue.

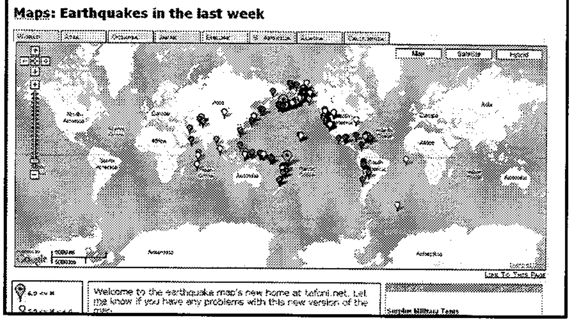
Trend #14. Online Photos, e.g., FLICKR (Inc. Magazine, Decem


canada canon city clouds concert florida flower flowers germany girl green house india london macro
TIME
TIME 100: The People Who Shape Our World
The Flickr Founders
Tagging 'takes off for web users'

Trends #15. Use Google Maps Mashups in K-12 Ed

By Jeffrey Branzburg, May 15, 2006

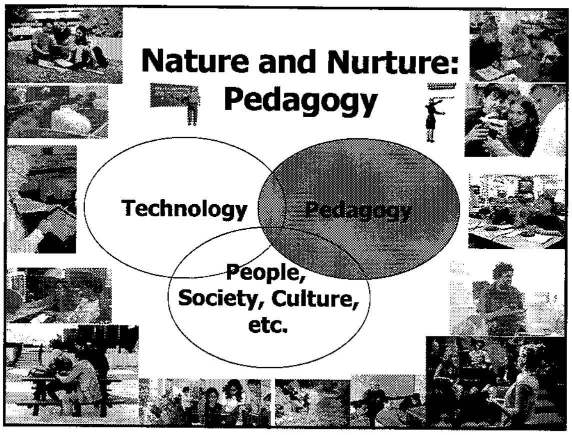
http://www.techlearning.com/story/showArticle.jhtml?articleID=187002846


Maps: Earthquakes in the last week

Welcome to the earthquake map's new home at tafoni.net. Let me know if you have any problems with this new version of the map.

Map
Satellite
Hybrid
Asia
Europe
Africa
Australia
Antarctica

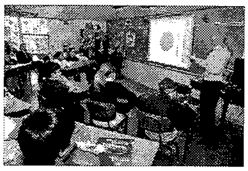
Nature and Nurture: Pedagogy


Technology

Pedagogy

People, Society, Culture, etc.

Part I: Four Learner Centered Ideas



Boring e-Learning

Experience. The difference.

I'm looking at these kids as they use this technology, and I realize they will have jobs that haven't been invented yet," says Maureen Zamboni, left, a fifth-grade teacher at University Liggett School. With her is Carol Kissel, resource teacher.
Grosse Pointe Woods
Throw out the chalk, teaching goes high-tech
Doug Guthrie / The Detroit News, March 2, 2007

1. 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

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

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

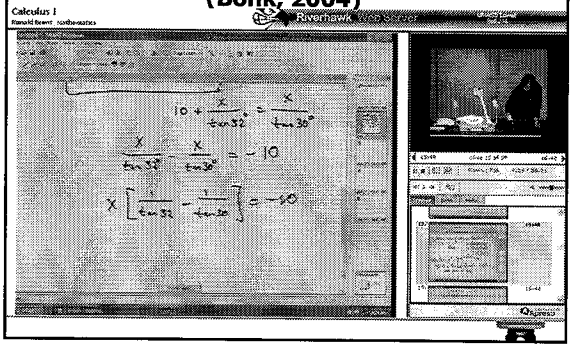
Individual Differences
12. Individual differences in learning
13. Learning and diversity
14. Standards and assessment

1. Anchored Instruction (find anchoring event (CTGV, 1990?)

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

- **In a synchronous lecture interrupt it with a summary video (could be a movie clip) explaining a key principle or concept.**
- **Refer back to that video during lecture.**
- **Debrief on effectiveness of it.**

2. Cool Resource Provider
(Bonk, 2004)

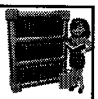


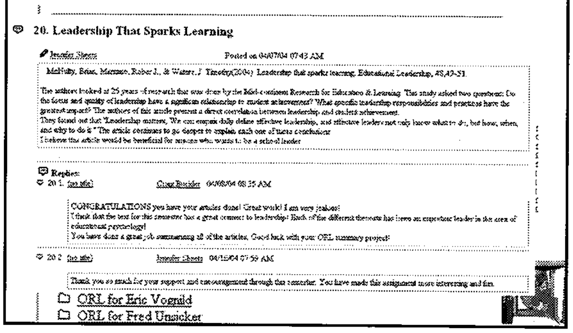
$$10+\frac{x}{\tan 32^\circ}=\frac{x}{\tan 30^\circ}$$

$$\frac{x}{\tan 32^\circ}-\frac{x}{\tan 30^\circ}=-10$$

$$x\left[\frac{1}{\tan 32}-\frac{1}{\tan 30}\right]=-10$$

3. ORL or Library Day
(Bonk, 1999)





20. Leadership That Sparks Learning

Jennifer Sheets Posted on 04/07/04 07:43 AM

Replies:

20.1. (no title) 04/08/04 08:35 AM

CONGRATULATIONS you have your articles done! Great work! I am very jealous!

You have done a great job summarizing all of the articles. Good luck with your ORL summary project!

20.2 (no title) Jennifer Sheets 04/15/04 07:59 AM

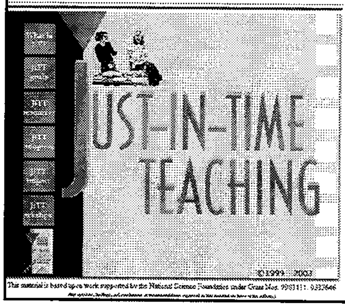
Thank you so much for your support and encouragement through this semester. You have made this assignment more interesting and fun.

ORL for Eric Vognild

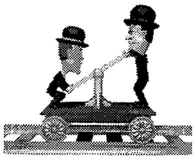
ORL for Fred Unsicker

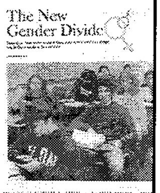
4. Online Warm-ups Activities Just-In-Time-Teaching (JiTT)

http://webphysics.iupui.edu/jitt/jitt.html



II. Four Motivational Ideas





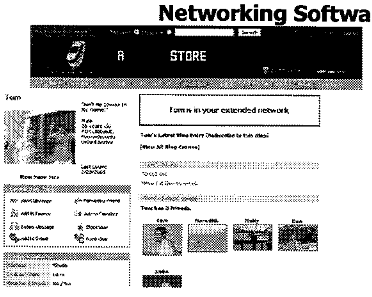
TEC-VARIETY Model Online Motivational

1. Tone/Climate: Psych Safety, Comfort, Belonging
2. Encouragement, Feedback: Responsive, Supports
3. Curiosity: Fun, Fantasy, Control

...

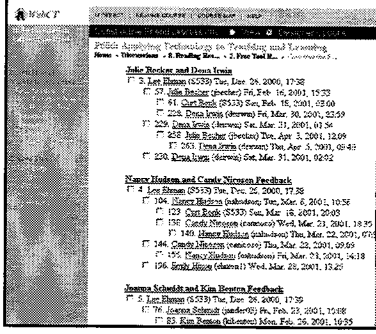
4. Variety: Novelty, Intrigue, Unknowns
5. Autonomy: Choice: Flexibility, Opportunities
6. Relevance: Meaningful, Authentic, Interesting
7. Interactive: Collaborative, Team-Based, Community
8. Engagement: Effort, Involvement, Excitement
9. Tension: Challenge, Dissonance, Controversy
10. Yields Products: Goal Driven, Products, Success, Ownership

1. Tone/Climate: a. Scavenger Hunt (Find Fellow Students Social Networking Software)



Oct 6, 2006, Chronicle

2. Encouragement, Feedback, etc.:
A. Critical/Constructive Friends, Email Pals...



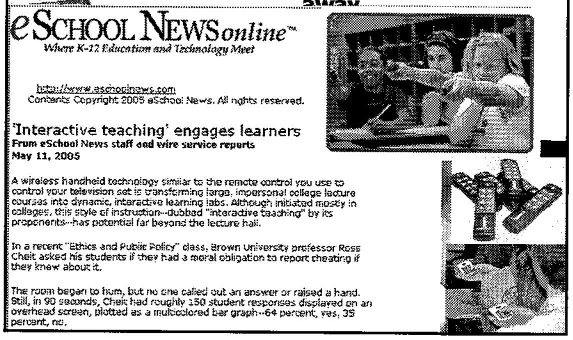
Home - Discussions - 8. Reading Res... - 2. Free Tool R...

Julie Becker and Dena Irwin
- 3. Lee Ehman (S533) Tue, Dec. 26, 2000, 17:38
  - 57. Julie Becker (jbecker) Fri, Feb. 16, 2001, 15:33
    - 61. Curt Bonk (S533) Sun, Feb. 18, 2001, 03:00
    - 228. Dena Irwin (derwin) Fri, Mar. 30, 2001, 23:59
  - 229. Dena Irwin (derwin) Sat, Mar. 31, 2001, 01:54
    - 258. Julie Becker (jbecker) Tue, Apr. 3, 2001, 12:09
      - 263. Dena Irwin (derwin) Thu, Apr. 5, 2001, 09:49
  - 230. Dena Irwin (derwin) Sat, Mar. 31, 2001, 02:02

Nancy Hudson and Candy Nicosen Feedback
- 4. Lee Ehman (S533) Tue, Dec. 26, 2000, 17:38
  - 104. Nancy Hudson (nahudson) Tue, Mar. 6, 2001, 10:56
    - 123. Curt Bonk (S533) Sun, Mar. 18, 2001, 20:03
    - 138. Candy Nicosen (cnicosen) Wed, Mar. 21, 2001, 18:39
      - 140. Nancy Hudson (nahudson) Thu, Mar. 22, 2001
  - 144. Candy Nicosen (cnicosen) Thu, Mar. 22, 2001, 09:09
    - 155. Nancy Hudson (nahudson) Fri, Mar. 23, 2001, 14:18
  - 196. Emily Hixon (ehixon1) Wed, Mar. 28, 2001, 13:25

Joanna Schmidt and Kim Benton Feedback
- 5. Lee Ehman (S533) Tue, Dec. 26, 2000, 17:39
  - 76. Joanna Schmidt (jander05) Fri, Feb. 23, 2001, 10:08
    - 83. Kim Benton (kibenton) Mon, Feb. 26, 2001, 10:35

5. Autonomy, Choice:
a. Clickers; Innovation is but one click away



http://www.eschoolnews.com
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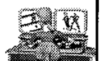
'Interactive teaching' engages learners
From eSchool News staff and wire service reports
May 11, 2005

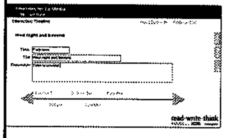
A wireless handheld technology similar to the remote control you use to control your television set is transforming large, impersonal college lecture courses into dynamic, interactive learning labs. Although initiated mostly in colleges, this style of instruction--dubbed "interactive teaching" by its proponents--has potential far beyond the lecture hall.

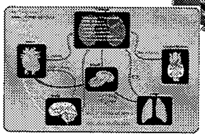
In a recent "Ethics and Public Policy" class, Brown University professor Ross Cheit asked his students if they had a moral obligation to report cheating if they knew about it.

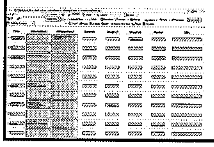
The room began to hum, but no one called out an answer or raised a hand. Still, in 90 seconds, Cheit had roughly 150 student responses displayed on an overhead screen, plotted as a multicolored bar graph--64 percent, yes, 35 percent, no.

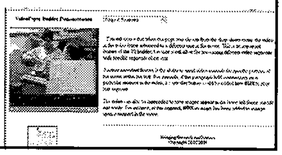
10. Yields Products: Concept Maps, Video Papers, Virtual Timelines





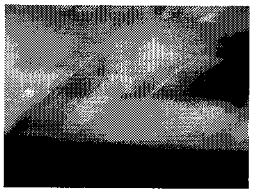






99 seconds: What have you learned so far?

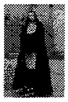
- Solid and Fuzzy in groups of two to four

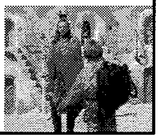


Part III. Addressing Learning Styles

Why Address Learning Styles?

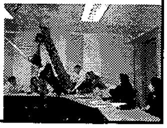
- Promotes reflection on teaching
- Move from just one mode of delivery
- View from different viewpoints
- Offer variety in the class
- Might lower drop-out rates
- Fosters experimentation

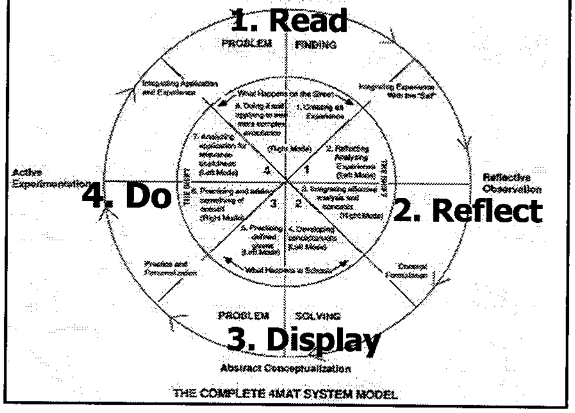


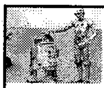


Poll 1: Which learning style do you prefer?

a. Read (Auditory and Verbal Learners)
b. Reflect (Reflective Learners)
c. Display (Visual Learners)
d. Do (Tactile, Kinesthetic, Exploratory Learners)

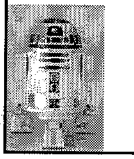


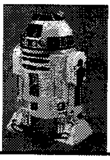

Concrete Experience
1. Read
PROBLEM
FINDING
Integrating Application and Experience
Integrating Experience With the "Self"
What Happens on the Street
8. Doing it and applying to new more complex experience
1. Creating an Experience
7. Analyzing application for relevance, usefulness (Left Mode)
(Right Mode)
2. Reflecting Analyzing Experience (Left Mode)
4
1
Active Experimentation
4. Do
Reflective Observation
2. Reflect
6. Practicing and adding something of oneself (Right Mode)
3
2
3. Integrating reflective analysis and concepts (Right Mode)
5. Practicing defined "givens" (Left Mode)
4. Developing concepts/skills (Left Mode)
What Happens in Schools
Practice and Personalization
Concept Formulation
PROBLEM
SOLVING
3. Display
Abstract Conceptualization
THE COMPLETE 4MAT SYSTEM MODEL

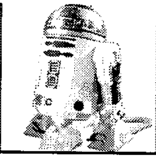


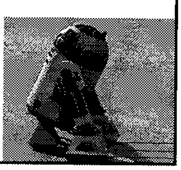
The R2D2 Method

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



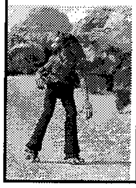




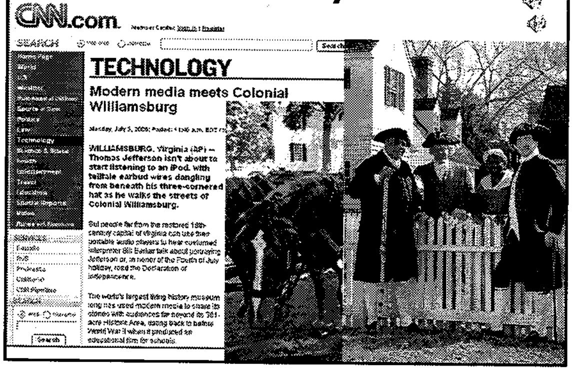


1. Auditory or Verbal Learners

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



1a. Art and History Exhibits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Search
Technology
Search

TECHNOLOGY

Modern media meets Colonial Williamsburg

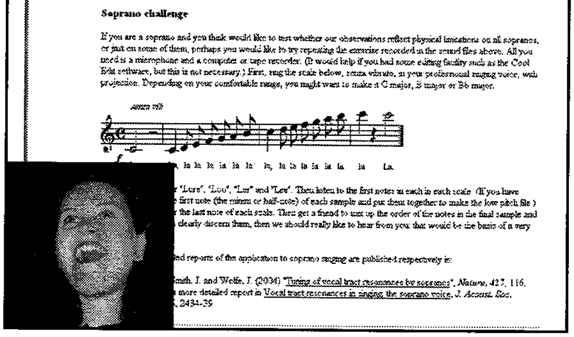
Monday, July 5, 2005; Posted:

WILLIAMSBURG, Virginia (AP) -- Thomas Jefferson isn't about to start listening to an iPod, with telltale earbud wires dangling from beneath his three-cornered hat as he walks the streets of Colonial Williamsburg.

But people far from the restored 18th-century capital of Virginia can use their portable audio players to hear costumed interpreter Bill Barker talk about portraying Jefferson or, in honor of the Fourth of July holiday, read the Declaration of Independence.

The world's largest living history museum long has used modern media to share its stories with audiences far beyond its 301-acre Historic Area, dating back to before World War II when it produced an educational film for schools.

1b. Basic Acoustics of Musical Instruments 2005 MERLOT Classics Award



Soprano challenge

If you are a soprano and you think would like to test whether our observations reflect physical limitations on all sopranos, or just on some of them, perhaps you would like to try repeating the exercise recorded in the sound files above. All you need is a microphone and a computer or tape recorder. (It would help if you had some editing facility such as the Cool Edit software, but this is not necessary.) First, sing the scale below, senza vibrato, at your professional singing voice, with projection. Depending on your comfortable range, you might want to make it C major, B major or Bb major.

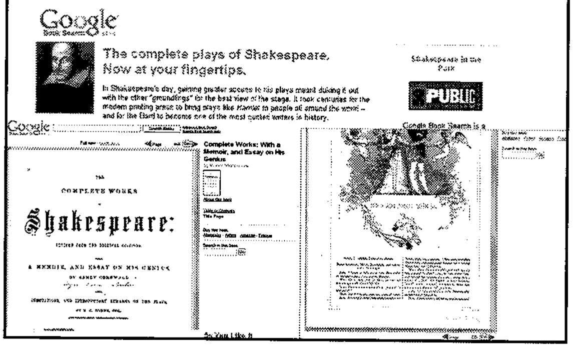
la, la la la la la la la, la la la la la la la La.

"Lore", "Loo", "Lar" and "Lee". Then listen to the first notes in each in each scale. (If you have first note (the minim or half-note) of each sample and put them together to make the low pitch file.) the last note of each scale. Then get a friend to mix up the order of the notes in the final sample and clearly discern them, then we should really like to hear from you: that would be the basis of a very

led reports of the application to soprano singing are published respectively in:

Smith, J. and Wolfe, J. (2004) "Tuning of vocal tract resonances by sopranos", *Nature*, 427, 116.
more detailed report in Vocal tract resonances in singing: the soprano voice, *J. Acoust. Soc.* 2434-39

1c. Online Literature and Free Books


Google Book Search

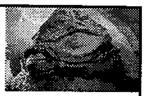
The complete plays of Shakespeare. Now at your fingertips.

In Shakespeare's day, gaining greater access to his plays meant duking it out with the other "groundlings" for the best view of the stage. It took centuries for the modern printing press to bring plays like *Hamlet* to people all around the world – and for the Bard to become one of the most quoted writers in history.

Shakespeare in the Park
PUBLIC
Google Book Search is a
Complete Works: With a Memoir, and Essay on His Genius
THE COMPLETE WORKS OF Shakespeare:
A MEMOIR, AND ESSAY ON HIS GENIUS
As You Like It

---

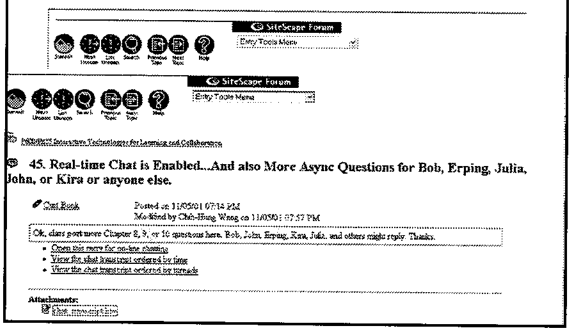
2. Reflective and Observational Learners



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

---

2a. Reuse Chat Transcripts


SiteScape Forum
Entry Tools Menu
Help

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

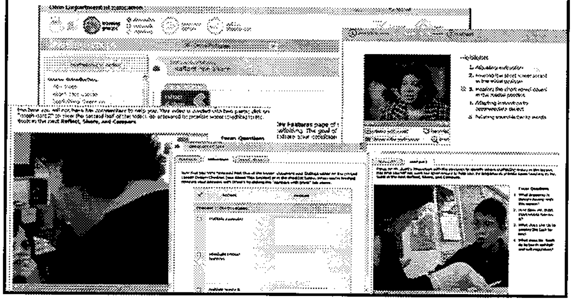
Chat Book — Posted on 11/05/01 07:34 PM
Modified by Chih-Hung Wang on 11/05/01 07:37 PM

Ok, class post more Chapter 8, 9, or 10 questions here. Bob, John, Erping, Kira, Julia, and others might reply. Thanks.

- Open this entry for on-line chatting
- View the chat transcript ordered by time
- View the chat transcript ordered by threads

Attachments:

2b. Online Professional Development (E-Reading First Ohio) (reflect, share, and compare)



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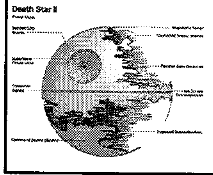
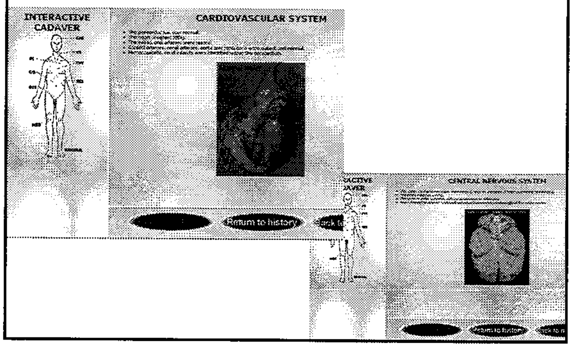
3. Visual Learners

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

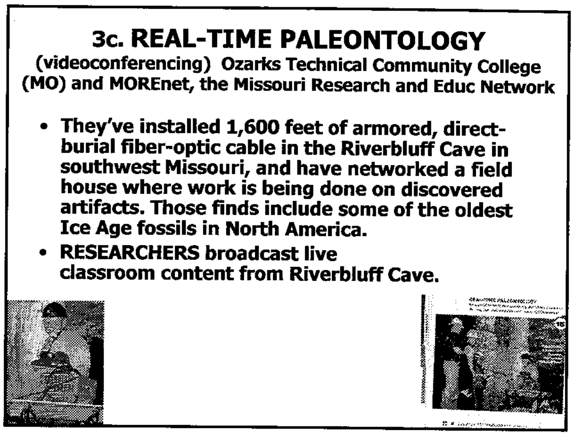

Death Star II

3a. Online Anatomy and Physiology


INTERACTIVE CADAVER
CARDIOVASCULAR SYSTEM
Return to history
CENTRAL NERVOUS SYSTEM

3b. Expert Mentoring Online in Art and Design

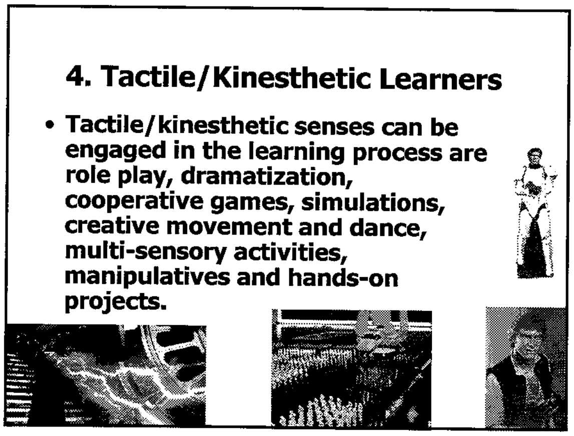
(COFA Online, Omnium Project, Creative Waves—onine graphics and photomedia project)



3c. REAL-TIME PALEONTOLOGY

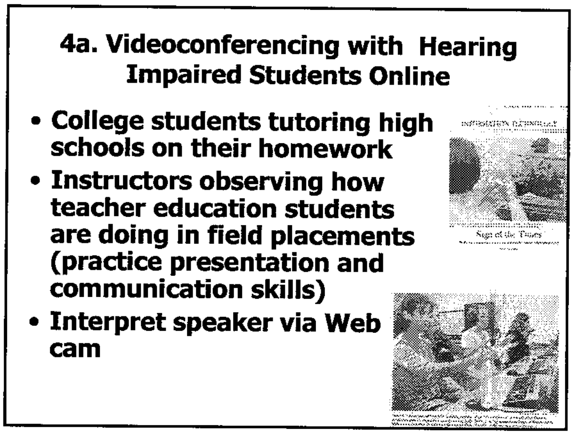
(videoconferencing) Ozarks Technical Community College (MO) and MOREnet, the Missouri Research and Educ Network

- They've installed 1,600 feet of armored, direct-burial fiber-optic cable in the Riverbluff Cave in southwest Missouri, and have networked a field house where work is being done on discovered artifacts. Those finds include some of the oldest Ice Age fossils in North America.
- RESEARCHERS broadcast live classroom content from Riverbluff Cave.



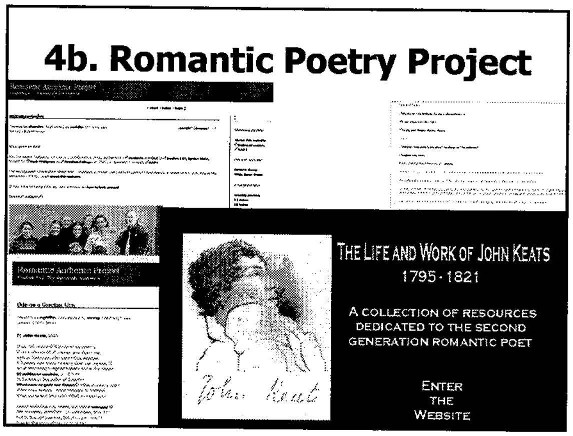
4. Tactile/Kinesthetic Learners

- 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.



4a. Videoconferencing with Hearing Impaired Students Online

- College students tutoring high schools on their homework
- Instructors observing how teacher education students are doing in field placements (practice presentation and communication skills)
- Interpret speaker via Web cam

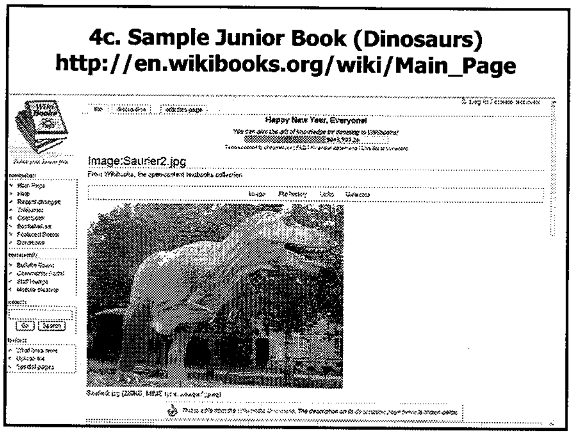


4b. Romantic Poetry Project

THE LIFE AND WORK OF JOHN KEATS
1795-1821

A COLLECTION OF RESOURCES
DEDICATED TO THE SECOND
GENERATION ROMANTIC POET

ENTER
THE
WEBSITE



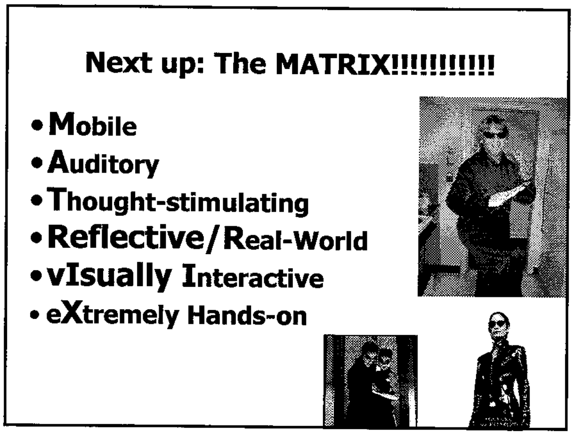
4c. Sample Junior Book (Dinosaurs)

http://en.wikibooks.org/wiki/Main_Page

Happy New Year, Everyone!

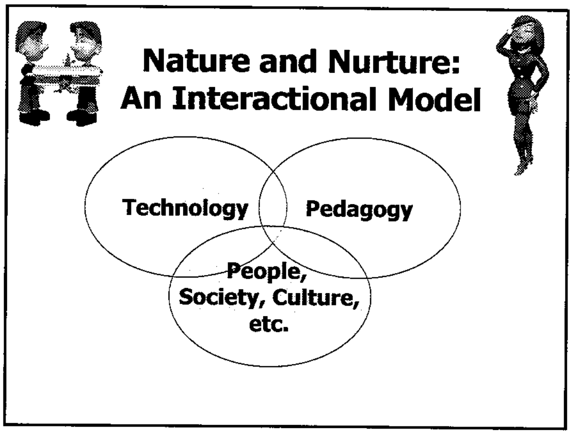
Image:Saurier2.jpg

From Wikibooks, the open-content textbooks collection.



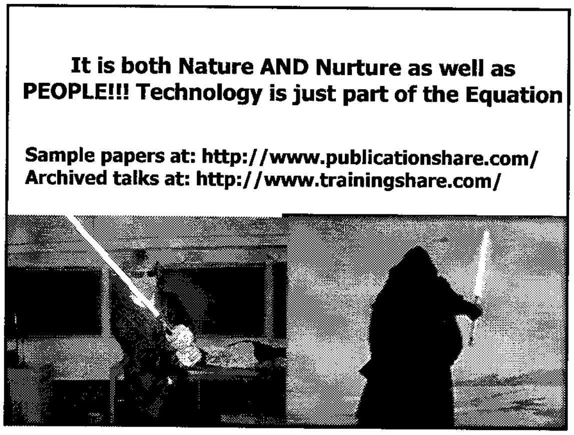
Next up: The MATRIX!!!!!!!!!!!

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



Nature and Nurture: An Interactional Model

Technology
Pedagogy
People, Society, Culture, etc.



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

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