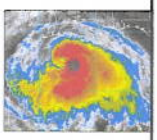
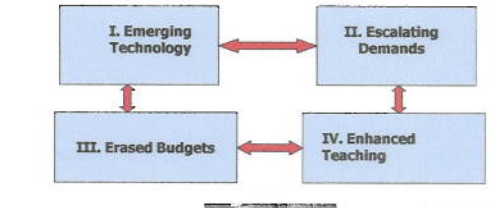
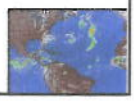
The Perfect E-Storm: Emerging Technologies, Enormous Demand, and Erased Budgets



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

Four Storms Are Approaching!





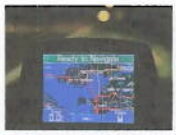
Storm 1. Emerging Learning Technologies

21 Things That Became Obsolete This Decade

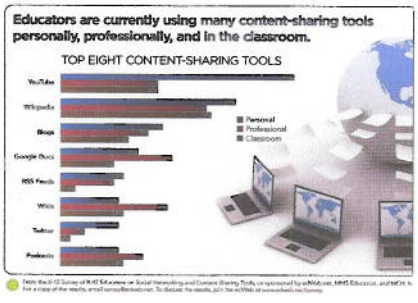
December 11, 2009, Silicon Alley Insider

15 Gadgets that Changed Everything This Decade

December 9, 2009, Jay Yarow, Silicon Alley Insider



Tech & Learning, Nov 2009



Unleashing the Future: Educators "Speak Up" about the Use of Emerging Technologies for Learning, Speak Up 2009, May 2010

http://www.tomorrow.org/speakup/pdfs/SU09UnleashingTheFuture.pdf

Table 1: Top technology picks for the ultimate school

Middle and High School Students	Principals	District Administrators
Communications tools (61%)	Interactive white boards (60%)	Collaboration Tools (67%)
Digital media tools (60%)	Mobile computer for every student such as laptop, mini-notebook, tablet PC (58%)	Mobile computer for every student such as laptop, mini-notebook, tablet PC (66%)
Online textbooks (58%)	Communications tools (55%)	Online Classes (58%)
Mobile computer for every student such as laptop, mini-notebook, tablet PC (57%)	Digital Media Tools (54%)	Campus wide Internet Access (57%)
Games or virtual simulations (56 %)	Collaboration tools (51%)	Interactive white boards (55%)

1. New Search Technology (timeline oriented)

2. Exercise Learning

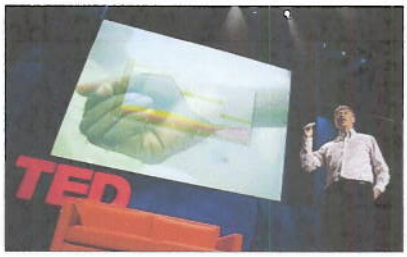
3. Teacher Sharing Sites

4. Teacher Social Networking

5. Social Networking Gaming (e.g., Farmville and gaming addictions)

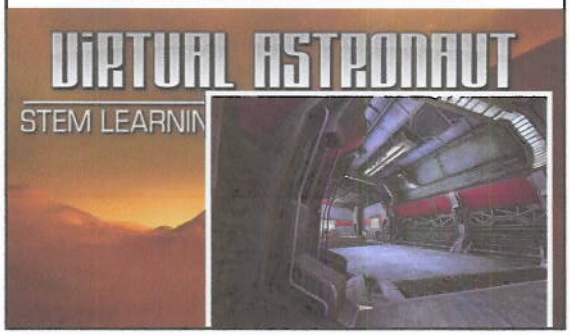
6. e-Book Readers

7. Shared Online Video (e.g., TED: technology, entertainment and design)



8. Live Streaming (e.g., Zoo Animals on Demand)

9. Simulations (e.g., Virtual Astronaut from WisdomTools



10. Global Collaboration continued EPals and iEARN (International Education and Resource Network)

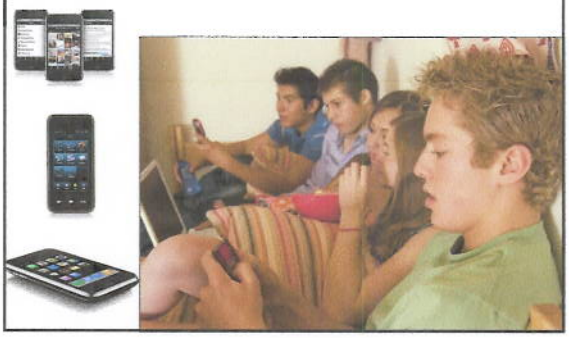
10. Smartphones

Mobile Learning and Blended Learning Exploding

College tech 'catching up' with students
Kathleen Gray & Robin Erb, USA TODAY, Oct 6, 2009

- At Abilene Christian (University)...about 2,800 students and 70% of the 250 professors use the Apple technology for instructional purposes.
  - Art students use app to draft sketch and send it to the teacher and other students for advice before starting the real art pieces.
  - A drama teacher takes video of the lead dancer in a production and sends that along to other students for rehearsal.

12. Mobile Learning



Unleashing the Future: Educators "Speak Up" about the Use of Emerging Technologies for Learning, Speak Up 2009, May 2010

http://www.tomorrow.org/speakup/pdfs/SU09UnleashingTheFuture.pdf

Table 2: Educators' biggest concerns about using mobile devices at school

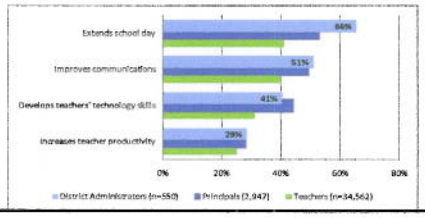
Reason	Teachers (n=34,280)	Principals (n=2,898)	District Administrators (n=535)
Students will be distracted	76%	44%	34%
Not all students have the mobile devices (digital equity)	62%	48%	52%
Concerned that students will cheat using the devices	33%	N/A	N/A
Teachers don't know how to effectively use the devices within instruction	24%	51%	54%
Need curriculum to support the use of mobile devices	23%	37%	39%
Concerns with theft at school	N/A	56%	40%
Current district cell phone policies	N/A	56%	55%

Unleashing the Future: Educators "Speak Up" about the Use of Emerging Technologies for Learning, Speak Up 2009, May 2010

http://www.tomorrow.org/speakup/pdfs/SU09UnleashingTheFuture.pdf

Speak Up 2009
Unleashing the Future: Educators "Speak Up" about the use of Emerging Technologies for Learning

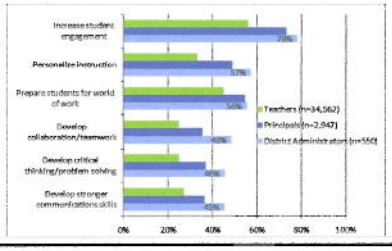
Figure 2: Mobile devices benefit students and teachers



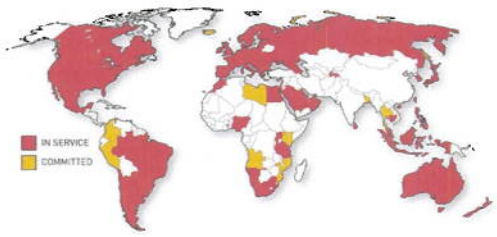
Unleashing the Future: Educators "Speak Up" about the Use of Emerging Technologies for Learning, Speak Up 2009, May 2010

http://www.tomorrow.org/speakup/pdfs/SU09UnleashingTheFuture.pdf

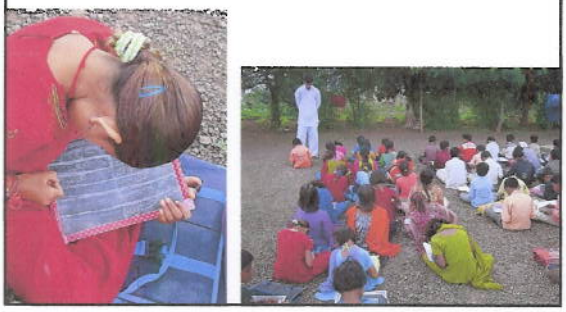
Figure 1: Educators' Speak Up about perceived benefits of using mobile devices for instruction

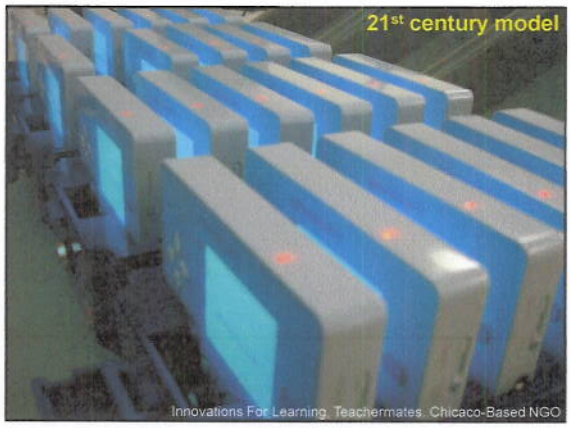


Mobile Internet (source: Dr. Paul Kim, Stanford)



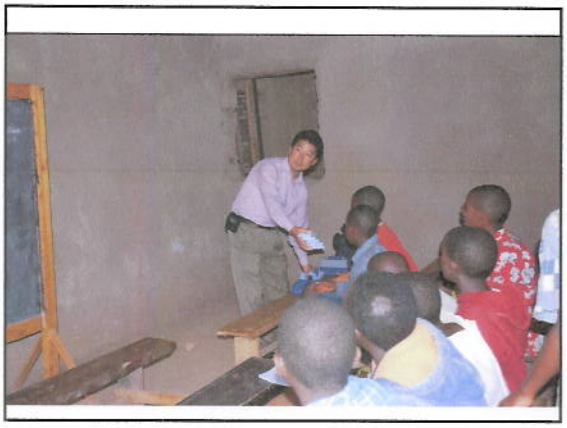
Seeds of Empowerment, India, Paul Kim, Stanford

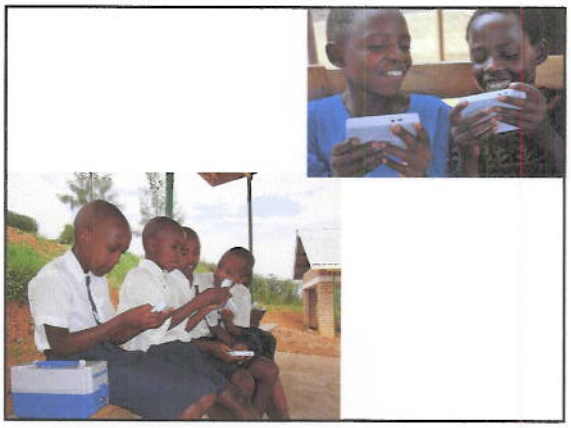


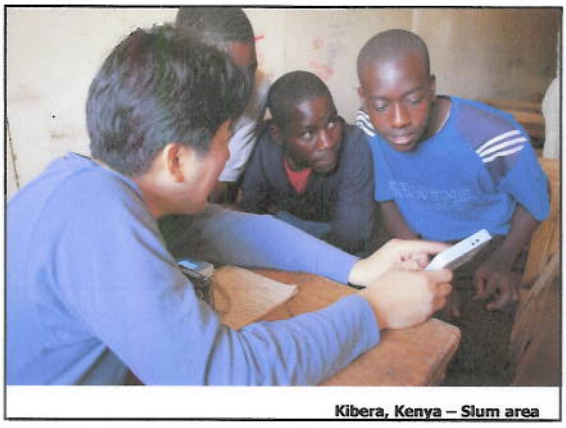


Seeds of Empowerment, India, Paul Kim, Stanford

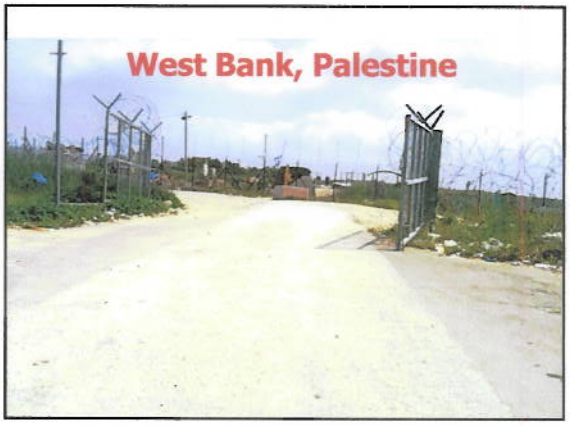
Seeds of Empowerment, India, Paul Kim, Stanford

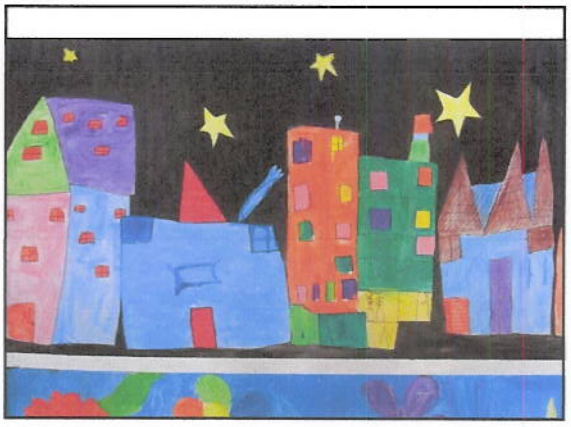


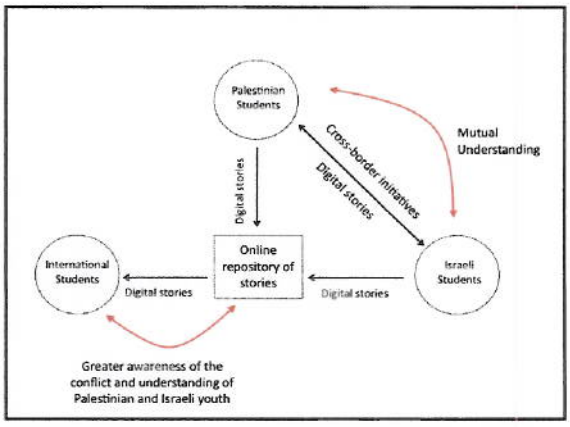




Kibera, Kenya – Slum area

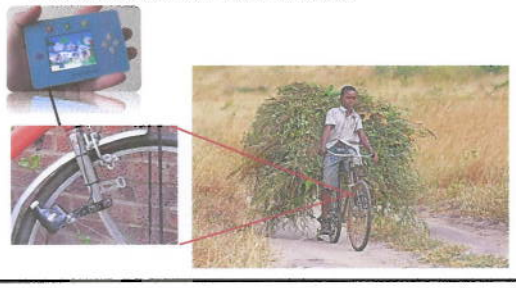




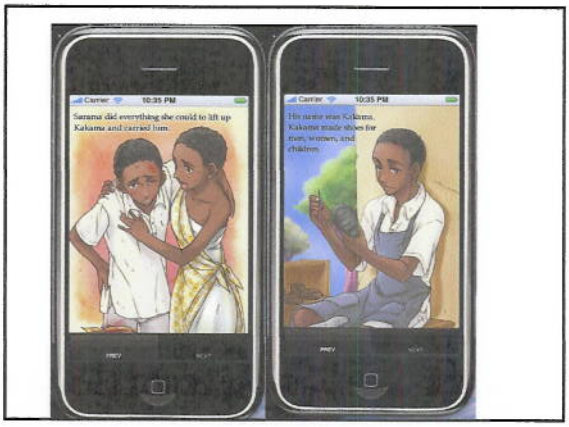


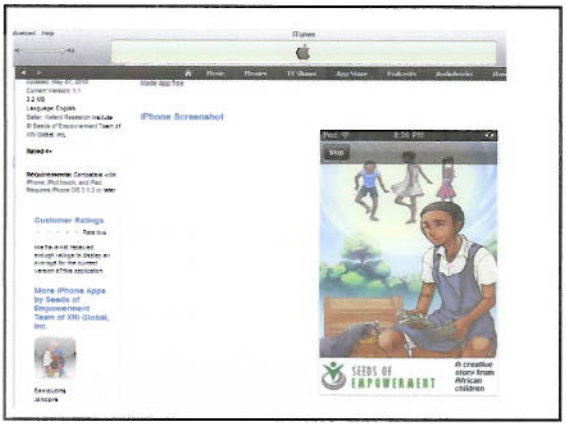
Powering the device on bicycle

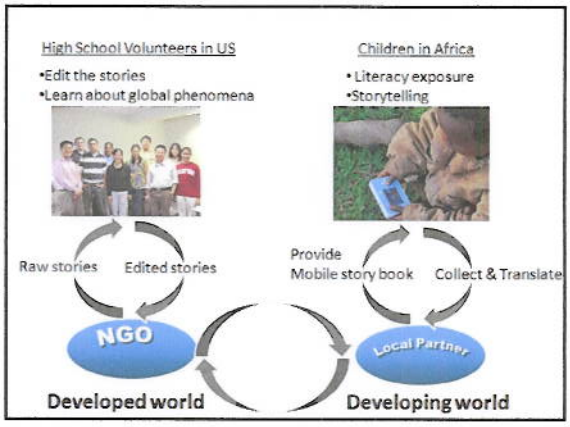
PocketSchool on Two Wheels

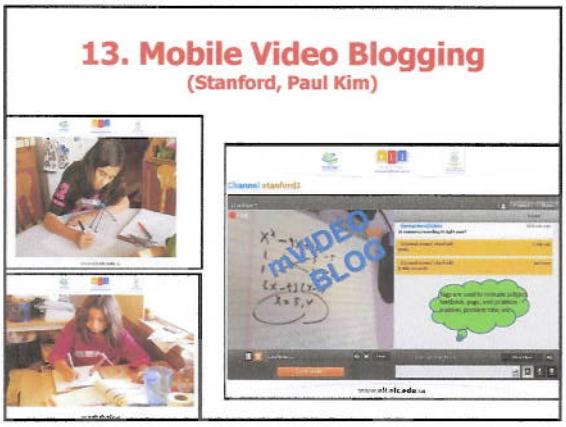


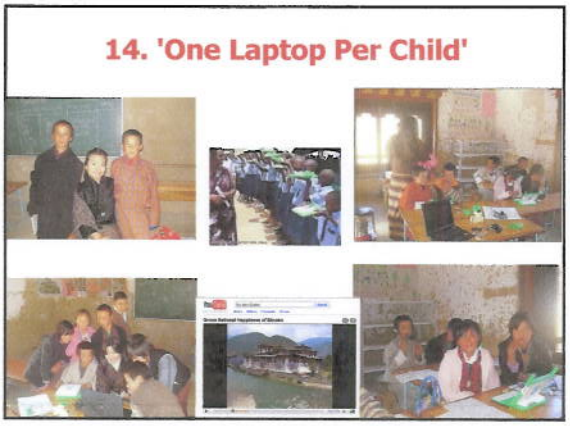

Stories about love, forgiving, unity, peace, reality in Africa
amazon.com


Carrier
10:35 PM
Sarama did everything she could to lift up Kakama and carried him.
Carrier
10:35 PM
His name was Kakama. Kakama made shoes for men, women, and children.


iTunes
iPhone Screenshot
SEEDS OF EMPOWERMENT
A creative story from African children

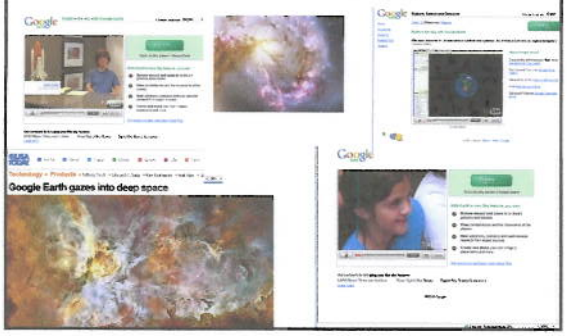

High School Volunteers in US
•Edit the stories
•Learn about global phenomena
Children in Africa
• Literacy exposure
•Storytelling
Raw stories
Edited stories
Provide
Mobile story book
Collect & Translate
NGO
Local Partner
Developed world
Developing world


13. Mobile Video Blogging
(Stanford, Paul Kim)
VIDEO BLOG


14. 'One Laptop Per Child'

15. Google Sky

http://earth.google.com/sky/index.html



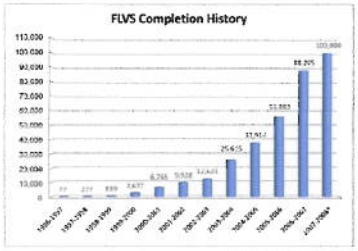
Space Portals (e.g., A New Motion Picture of the Universe, With Free Admission for Colleges Large and Small, By Ben Terris, Chronicle of HE, Feb 7, 2010)

From its mountaintop site of Cerro Panchón, in Chile (rendered above), the new telescope will look for dangerous asteroids and help researchers learn more about dark matter and dark energy. The Large Synoptic Survey Telescope has a combination of mirrors and three camera lenses that can capture the movements of billions of stars and galaxies.

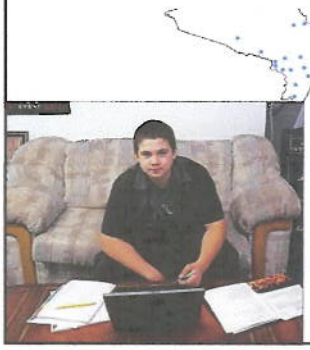
16. Text Messaging

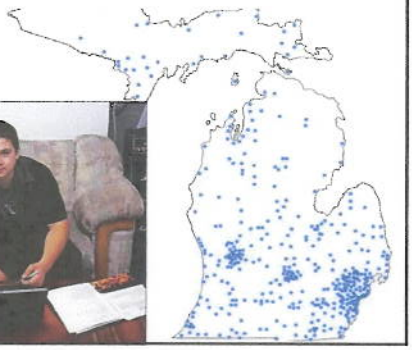
On to Storm 2... Escalating (Learner) Demands

Growth of Online Learning in Secondary Schools (Florida Virtual School; AP American History)



Michigan Virtual School





Michigan Virtual School

4.1 The Michigan Virtual School (cont.)

Since its inception MVS has:

- Served more than 39,000 course enrollments.
- Served more than 167,000 students with online ACT, SAT, PSAT or Michigan assessment resource tool.
- Served over 800 public and private schools with an online course or test review tool; and
- Recorded approximately a 75% course completion rate during the last three years.

(See Figure 3 for annual enrollment and course counts.)

Figure 3: MVS Courses and Online Enrollments 1999-2007

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08**
Enrollments*	160	676	2,202	5,591	5,629	5,917	6,877	8,941	11,000
Schools served*	16	101	194	311	360	476	672	1,040	1,100
Unique courses	6	17	27	123	157	162	190	251	260

*This includes dual, supplemental, and out-of-region enrollments.
**This includes home school enrollments.
***These are estimates.

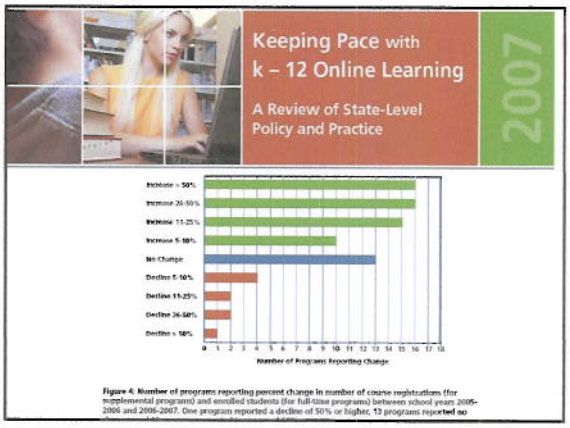


Figure 4: Number of programs reporting percent change in number of course registrations (for supplemental programs) and enrolled students (for full-time programs) between school years 2005-2006 and 2006-2007. One program reported a decline of 50% or higher, 12 programs reported no

Tech & Learning, Nov 2009

FAST FACTS ABOUT ONLINE LEARNING

K-12 online learning is an estimated **$50 million** market that is growing at an estimated pace of 30% annually.

44 states have significant supplemental online learning programs, or significant full-time programs (in which students take most or all of their courses online), or both.

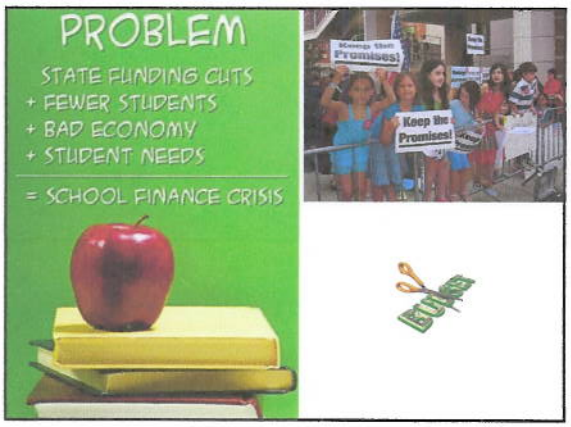
34 states offer state-led programs that are designed, in most cases, to work with school districts to supplement course offerings for students.

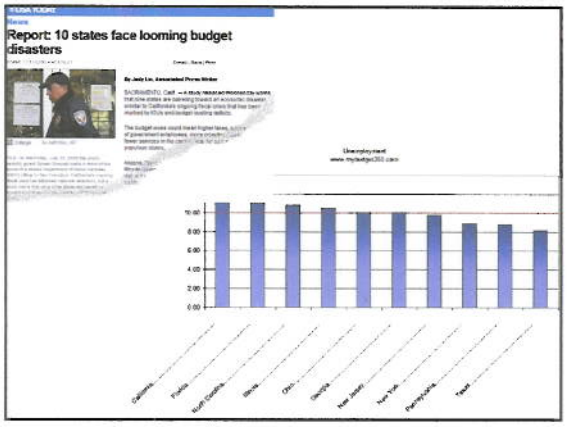
57% of public secondary schools in the U.S. provide access to students for online learning.

72% of school districts with distance education programs planned to expand online offerings in the coming year.

SOURCE: THE INTERNATIONAL ASSOCIATION FOR K-12 ONLINE LEARNING (iNACOL), A NON-PROFIT ORGANIZATION THAT FACILITATES COLLABORATION, ADVOCACY, AND RESEARCH TO ENHANCE QUALITY K-12 ONLINE TEACHING AND LEARNING.

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



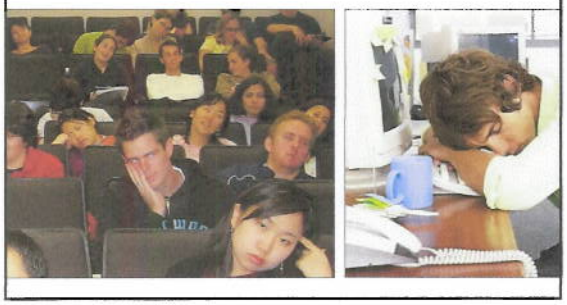


Obama to Invest in High-Tech Education

On to Storm 4: Enhanced Teaching (a swirling storm)

Adding Some TEC-VARIETY

We are not motivating students with the technologies that they love



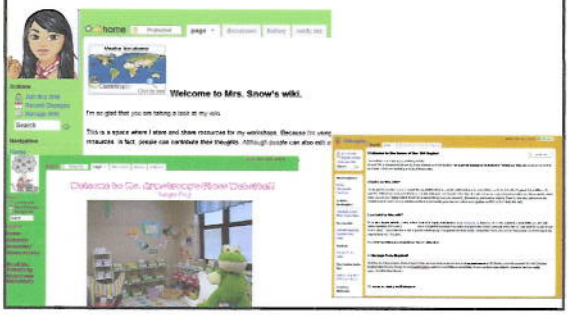
I even reflected on this for a moment...and then something magical happened...

The 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

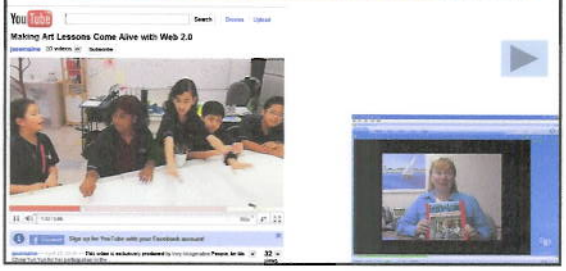
1. Tone/Climate: (open, inviting)

A. Create a Class Wiki (Wikispaces)



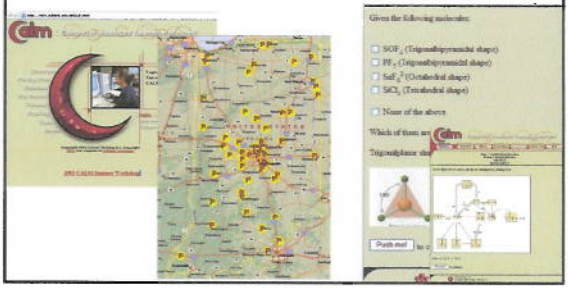
1. Tone/Climate: B. Video Course Intros from Instructors.

Yun Yun Chow, Open U Malaysia
Making Art Lessons Come Alive with Web 2.0
http://www.youtube.com/watch?v=BO9rqJD1GXo



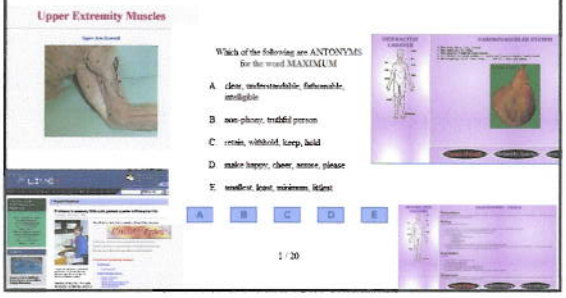
2. Encouragement, Feedback, etc.:

A. New Self-testing Skills. High School Student Self-Testing (e.g., Calm Chemistry)



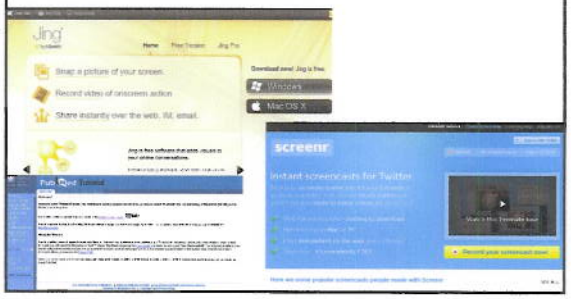
2. Encouragement, Feedback, etc.:

B. Online Self-Testing (e.g., self study in vocabulary, anatomy, chemistry, dissection, etc.)



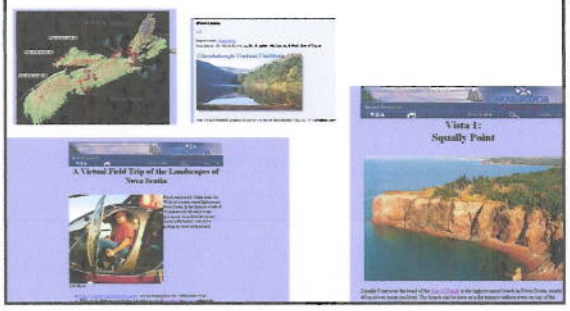
2. Encouragement, Feedback, etc.:

C. Tutorials with Screen Capture (e.g., Jing, Screenr)



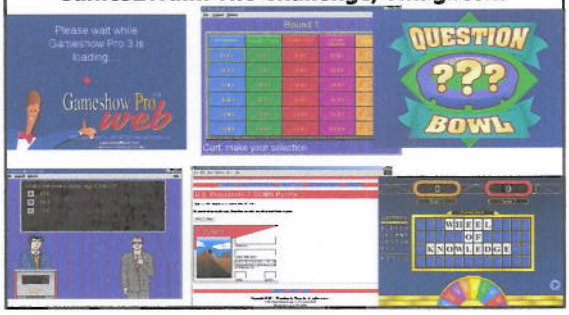
3. Curiosity, Fun:
A. Online News
(Giant jellyfish, Tiny T. rex, and Ardi)

3. Curiosity, Fun:
B. Virtual Tours



3. Curiosity, Fun:
C. Virtual Field Trips

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



4. Variety, Novelty:
A. Cool Resource Provider or Tech Demos

- 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.

4. Variety, Novelty:
B. Expert Chats/Real Explorer or Teacher Interaction
Jean Pennycook (Geographical blogging)
http://www.penguinscience.com/clim_change_ms.php

5. Autonomy, Choice: A. Famous Person Web Explorations, Searches, Twitter Tracking, and Interviews (e.g., Thomas Friedman, NY Times reporter)

5. Autonomy, Choice: B. Explore Online Museums, Zoos, Library Exhibits

Arlington Racetrack

Jockey's are Important

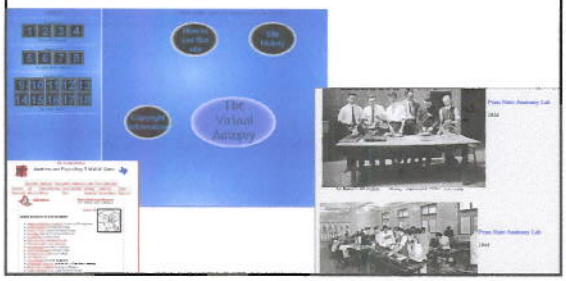
5. Autonomy, Choice: C. Online Literature Search (Class Google Jockeys)

(links to text, soundtracks, video clips, etc.)

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

6. Relevance, Meaningfulness: A. Online Simulations and Demonstrations

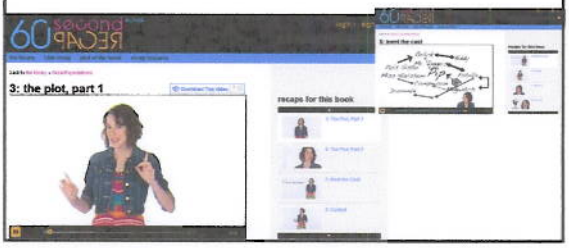
(e.g., self study in anatomy or chemistry, virtual autopsy, dissection, etc.)



6. Relevance, Meaningfulness: B. 60 Second Recap, Jenny Sawyer

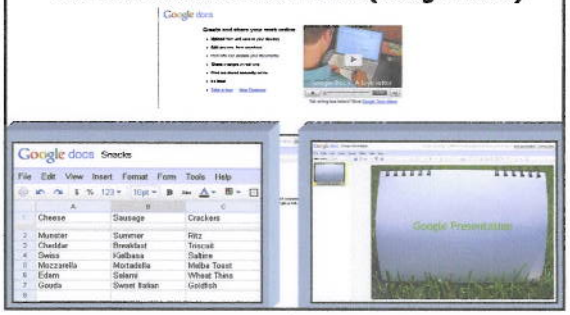
http://www.60secondrecap.com/

Actress to students: Lend me your earbuds!
English major, 24, rambunctiously recaps the classics in 60-second Web videos; By Greg Toppo; USA TODAY, September 2009



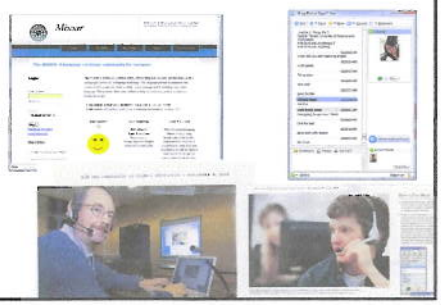
6. Relevance, Meaningfulness: C. New Real World and Authentic Learning Skills (PBL, evaluation, interaction, communication, etc.)

7. Interactive, Collaborative: A. Collaborative Documents (Google Docs)



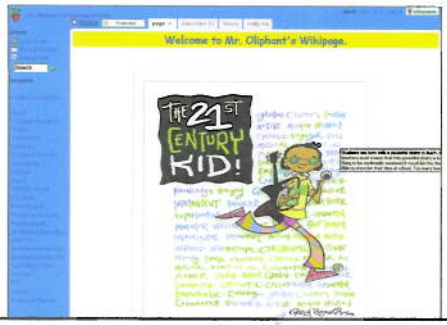
7. Interactive, Collaborative: B. Online Language Learning

(Skype with Mixxer, Livemocha, Friends Abroad)



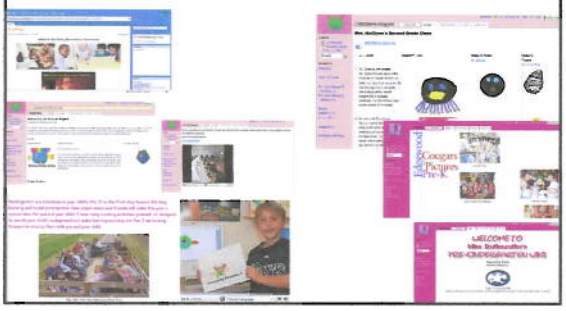
7. Interactive, Collaborative: C. International Children's Digital Library (ICDL) project (Univ. of Maryland, *Black Beauty, Aesop's Fables, Little Red Riding Hood, Grimm's Fairy Tales, Robinson Crusoe,* and *Mother Goose*.

7. Interactive, Collaborative: Interactive, Collaborative: D. Instructor Wiki portal page

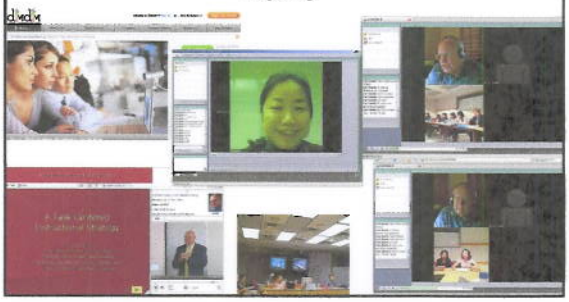


8. Engagement, Effort: A. Follow Online Adventure

8. Engagement, Effort: B. Wikis for Monster Writing (early childhood)



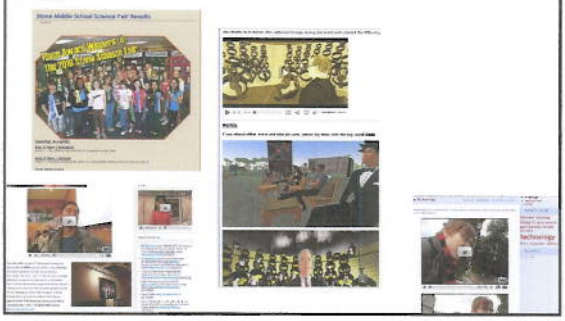
8. Engagement, Effort: C. Synchronous and Asynchronous Events (e.g., Breeze + Video + Online Forum + Online Papers)



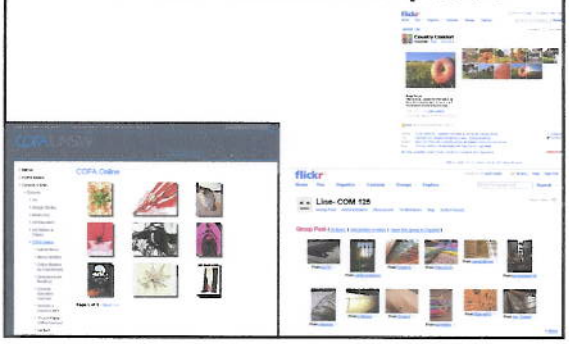
9. Tension, Challenge, etc.: A. Ethical Medical Debates

10. Yields Products, Goals: A. Movie Festivals, Virtual Timelines, Digital Movies

10. Yields Products, Goals: B. Video Blogs



10. Yields Products, Goals: C. Photo Festivals and Competitions



TEC-VARIETY Model for Online Motivation and Retention

Tone/Climate
Encouragement, Feedback
Curiosity

Variety
Autonomy
Relevance
Interactive
Engagement
Tension
Yields Products

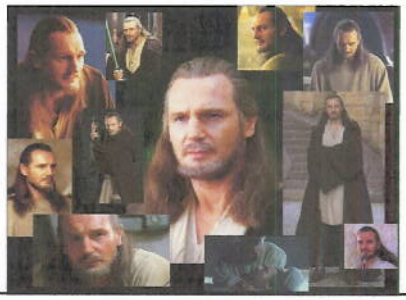
Poll #1: How many ideas did you get so far?

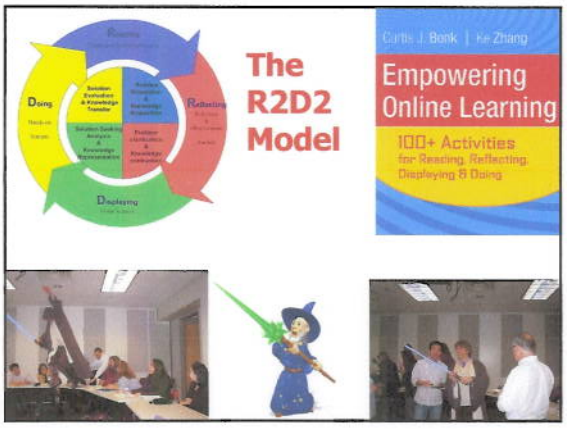
1. 0 if I am lucky.
2. Just 1.
3. 2, yes, 2...just 2!
4. Do I hear 3? 3!!!!
5. 4-5.
6. 5-10.
7. More than 10.

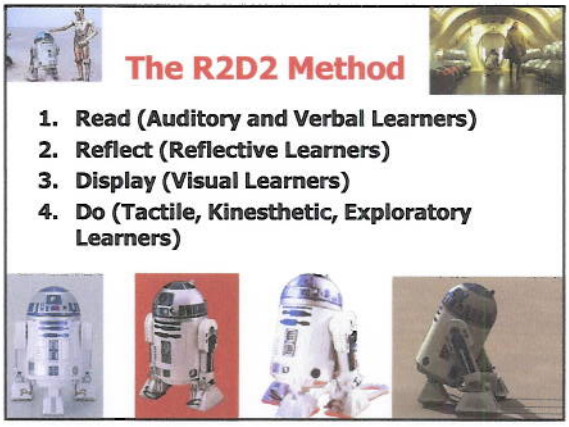
99 seconds: What have you learned so far?

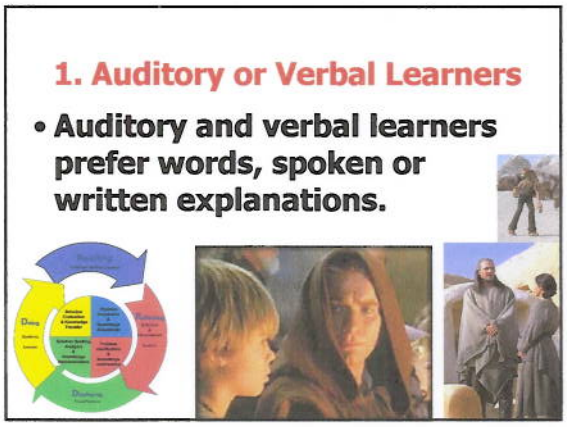
- Solid and Fuzzy in groups of two to four

Addressing Diverse Learners with R2D2



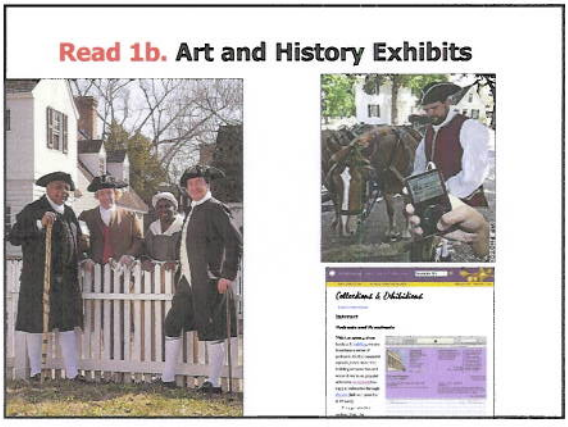

The R2D2 Model
Curtis J. Bonk | Ke Zhang
Empowering Online Learning
100+ Activities
for Reading, Reflecting, Displaying & Doing


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.


Read 1a. Kids Podcasts
WillowWeb
Radio WillowWeb


Reflect on the Following Questions:
1. Have you listened to a podcast?
2. Do you listen to a certain podcast on a regular basis?
3. Have you created a podcast?
4. Have you created a vodcast?
5. Do you think podcasting is simply more talking heads?
PODCASTING

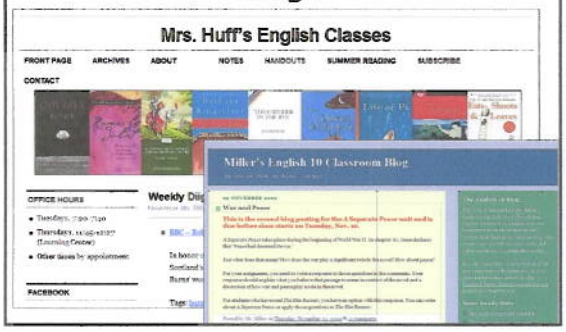

Read 1b. Art and History Exhibits

Read 1c. Wiki Steps on How to do Something: Wikihow http://www.wikihow.com/

2. Reflective and Observational Learners

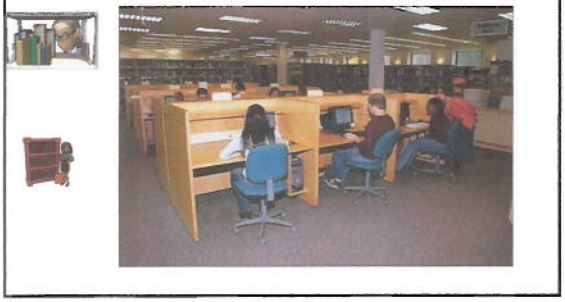
- Reflective and observational learners prefer to reflect, observe, view, and watch learning; they make careful judgments and view things from different perspectives

Reflect 2a. Teacher Classroom Blogs



Reflect 2a. Kids Blogs

Reflect 2c. ORL or Library Day

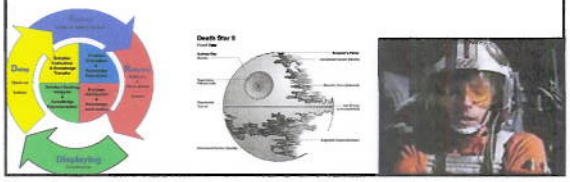


Reflect 2d. Watch, Listen to, and Reflect on Online Conferences

Reflect 2e. Expert and Domain Specific Blogs (Health Blogs)

3. Visual Learners

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

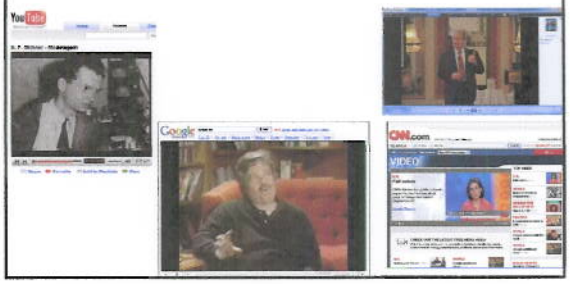


Ed-tech officials: Video will make schools more 'efficient'
Most school and college decision makers agree that video technology can help boost learning
By Dennis Carter, Assistant Editor, May 5, 2010
http://www.ecampusnews.com/technologies/ed-tech-officials-video-will-make-schools-more-efficient/

Fifty-three percent of school officials said they would buy video technology in the next year.

Display 3a. Shared Online Videos for Anchoring or Ending Instruction

(find anchoring event in YouTube, CNN, BBC, TeacherTube, CurrentTV)



Display 3b. Shared Online Video

(e.g., eduTube, Howcast, WonderHowTo, Clip Chef, Link TV, Fora TV, etc.)

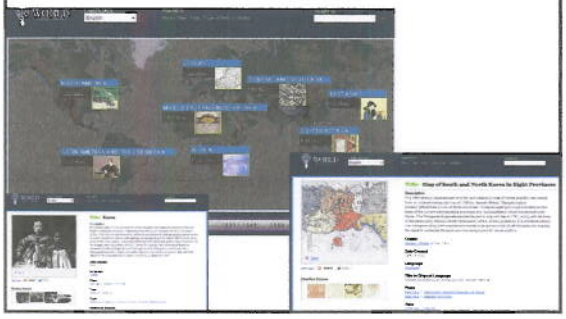
Display 3c. Videos of the Periodic Table

Display 3d. Video iPod Vocabulary Training

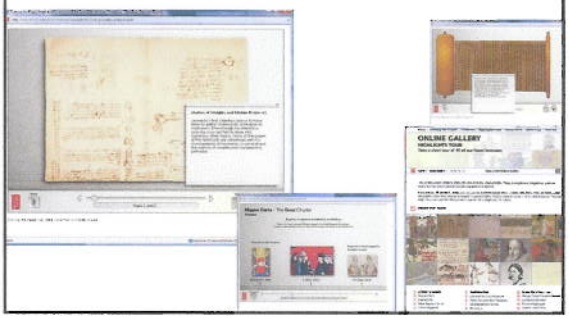
Display 3e. Medical Animations and Videos (find anchoring event (YouTube, CNN, BBC, TeacherTube, CurrentTV)

Display 3f. United Nations Opens World Digital Library, April 21, 2009

Chronicle of Higher Ed, http://www.wdl.org/en/



Display 3g. Online Historical Document (e.g., Turning The Pages, British Library)



Display 3h. Online Timelines (US Presidents)

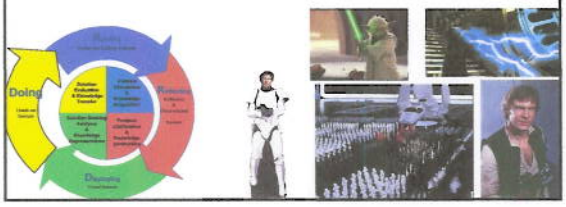
Display 3i. Concept Mapping and Timeline Tools (VUE, Bubbl.us, Cmap, Freemind, Gliffy, Mindmeister, or Mindomo)

Display 3j. Online History Portals and Resources (Civil Rights Digital Library and Amistad)

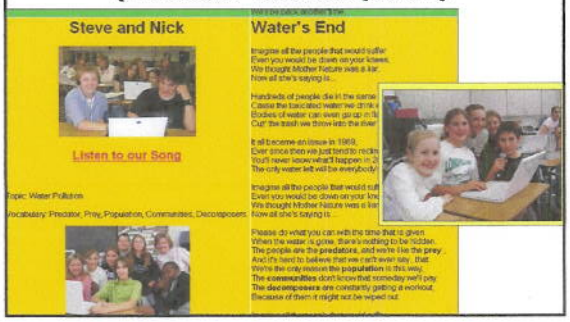
Display 3k. Download and Use Online 3D Sketches (Google SketchUp; download http://sketchup.google.com/3dwarehouse)

4. Tactile/Kinesthetic Learners

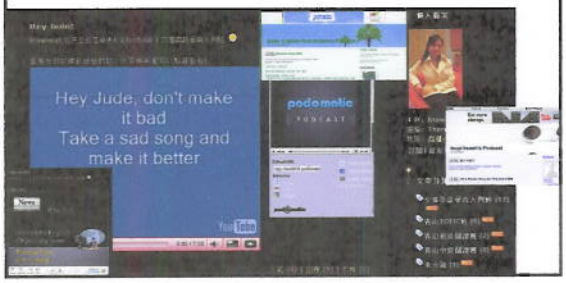
- Tactile/kinesthetic senses can be engaged in the learning process are role play, dramatization, cooperative games, simulations, creative movement and dance, multi-sensory activities, manipulatives and hands-on projects.



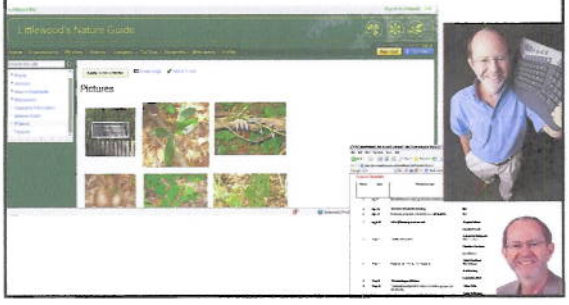
Do 4a. Student Podcast (in schools—kids have power!)



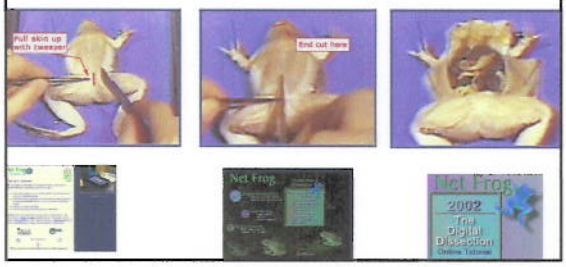
Do 4b. Podcasts for students of pronunciation class (e.g., Tzu-Su Chen, Taiwan)



Do 4c. Wikis for Kids to Share (or put class lessons in a wiki)



Do 4d. Hands-On Frog Dissection (Net Frog, Univ. of Virginia)



Do 4e. Online Performances Virtual Worlds/Reality/MMOG

(e.g.,Shakespeare plays reenacted)

Recap of the Perfect E-Storm....

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

Poll #2: How many ideas did you get from the second part of this talk?

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!

99 Seconds Stop and Share: Top Three Things Learned today!

Try the R2D2 Method! Try TEC-VARIETY! And hope for some magic!!!

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