Addressing Diverse Online Learner Needs with the Read, Reflect, Display, and Do (R2D2) and TEC-Variety Models
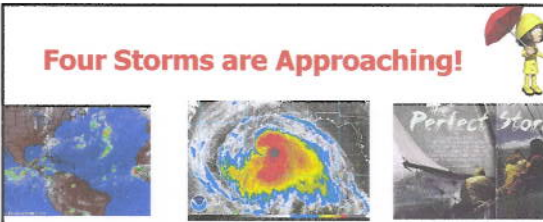
Dr. Curtis J. Bonk
Professor, Indiana University
President, SurveyShare, Inc.
http://mypage.iu.edu/~cjbonk/
cjbonk@indiana.edu

Four Storms are Approaching!

| I. Emerging Technology | II. Escalating Demands |
| III. Erased Budgets | IV. Enhanced Teaching |

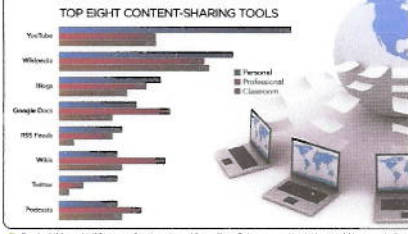**Storm 1. Emerging Learning Technologies**

Poll #1: Which of these is the most important? (pick one)

1. Assistive Technologies
2. Blogs and Online Diaries
3. OpenCourseWare and Open Educational Resources
4. Digital Books
5. Social Networking Technology
6. Intelligent Agents
7. Wikis and Wikibooks
8. Online Games and Simulations (Massive Multiplayer Gaming)
9. Shared Online Video (YouTube, TeacherTube)
10. Peer-to-Peer Collaboration
11. Reusable Content Objects and Portals
12. Videostreaming, IP Videoconferencing
13. Virtual Worlds/Reality
14. Wearable Computing
15. Wireless Tech: Tablet PCs, Handheld Devices
16. Digital Portfolios

Tech & Learning, Nov 2009

---

1. New Search Technology (timeline oriented)

2. Google Sky
What if the World was Beyond our World?
NASA's Hubble Space) USA Today, August 22, 2007

3. Mobile Learning

- **50 million iPhone users and 85,000 applications.**
- **Pull yourself away from that iPhone and read this story,** By Mary Brophy Marcus, USA Today, October 5, 2009

4. Social Networking Gaming (e.g., Farmville)
For social networks, it's game on, USA Today, Jon Swartz, Thursday October 15, 2009

5. e-Book Readers
(e.g., Barnes & Noble unveils its e-reader, USA Today, October 21, 2009)

6. Digital Textbook Projects (Korea)
Includes: dictionary, email and forums, games, simulations, hyperlinks, multimedia, authoring, data search, study aids, evaluation, etc.
(112 schools as of 2009; free for all schools by 2013)

7. TED
Tech Confab With a Conscience Goes Global
USA Today, July 21, 2009

8. Live Streaming
(e.g., Zoo Animals on Demand)
USA Today, September 8, 2009
Littlest patients find distraction, comfort in live feeds from zoos

9. OpenCourseWare (OCW)
(MIT Highlights for High School and BLOSSOMS Project)

10. Online Educational Resources (OER)
(See free-Reading.net)

11. Mobile Video Blogging
(Stanford, Paul Kim)

12. Simulations
(e.g., Virtual Astronaut from WisdomTools)

13. Global Collaboration
(e.g., Flat Classroom Projects!)
(combine blogs, videoconferencing, chat, async discussion, etc.)

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

15. Interactive Videoconferncing Global Nomads Group http://www.gng.org/home.html

16. Wikis and Wiki Collaboration Sites (e.g., Wikispaces)

17. Connexions Growth
January 2009

>8,000 modules (3-5 pages)
>425 collections (books and courses)
multiple languages

engineering, computer science, nanotech, physics, statistics, math, history, music, bio-diversity, botany, bio-info, IP, BRIT, UNESCO, UN, Sigma Xi, ...
from authors *worldwide*

Usage (December 2009)
1.6m unique users
4 million page views
72 million hits
More than 1m unique users from nearly 200 countries

18. 'One Laptop Per Child' program collides with reality, Toronto Globe and Mail, Oct 15, 2009 Bhutan, Khendum Gyabak (Univ. of Texas at El Paso)

19. Moodle (620,000 registered users in 204 countries speaking 78 languages, 2/10/2009)

20. Text Messaging. "This Generation: Always Connected: 18 and Under: Texting, Surfing, Studying? NY Times, October 13, 2009, PERRI KLASS, M.D

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

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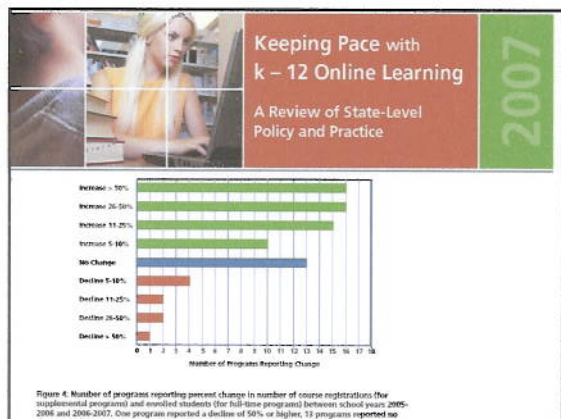(Florida Virtual School; AP American History)

Michigan Virtual School
(11,000+ students, Dan Schultz, October 2008)

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	100	676	2,303	5,591	5,670	5,917	6,877	8,943	11,000
Schools served	18	191	194	311	380	476	672	1,048	1,100
Unique courses	6	17	27	135	137	162	190	251	200

Indiana University High School
(4,000 students and 1,400 in diploma programs)

Adora Svitak, age 12, World's Youngest Teacher

Keeping Pace with
k – 12 Online Learning

A Review of State-Level
Policy and Practice

2007

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, 13 programs reported no


Tech & Learning, Nov 2009

news&trends

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 K12 ONLINE LEARNING (INACOL), A NON-PROFIT ORGANIZATION THAT FACILITATES COLLABORATION, ADVOCACY, AND RESEARCH TO ENHANCE QUALITY K12 ONLINE TEACHING AND LEARNING.

We're in the Midst of Storm 3: Erased Budgets
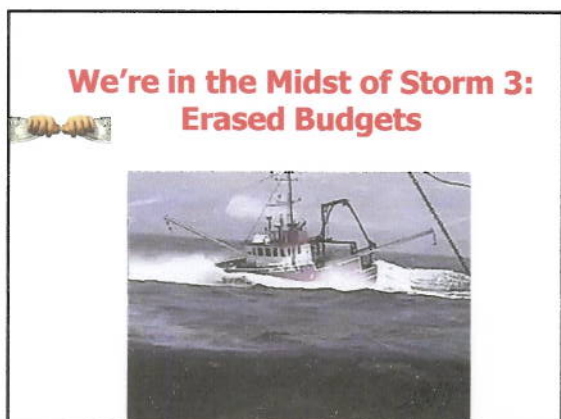
STIMULUS BY STATE
ESTIMATED JOB CREATION

Report: 10 states face looming budget disasters

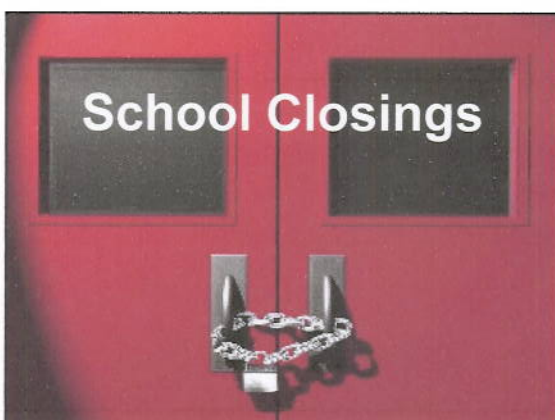## Obama to Invest in High-Tech Education, CNN Money, September 21, 2009

CNNMoney.com

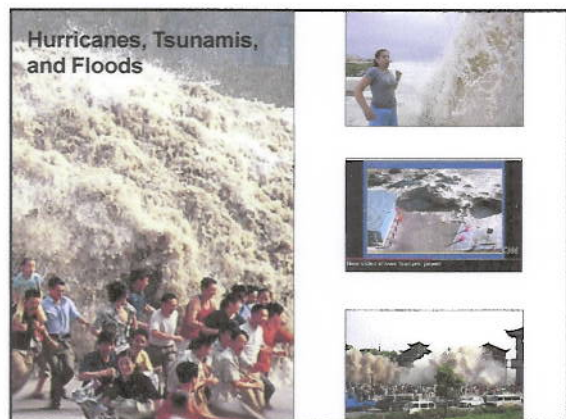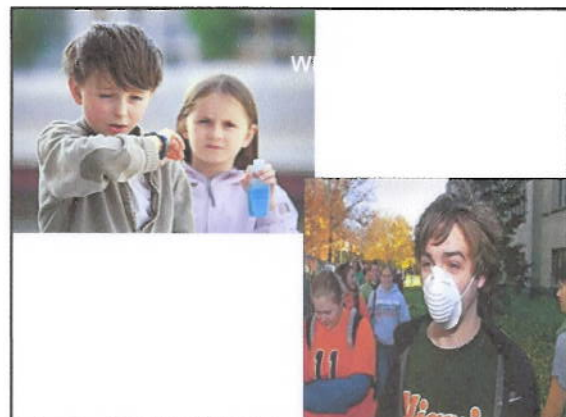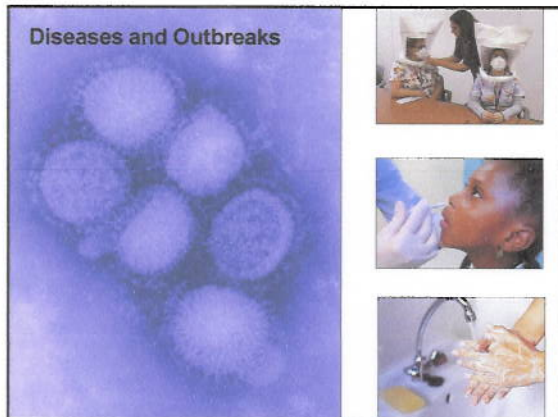### Obama urges investment in high-tech education

The president says training Americans for jobs of the future will help create a more stable foundation for the economy.

NEW YORK (CNNMoney.com) -- President Obama on Monday pushed his plans to make the nation's economy more stable in the future by investing in education for high-tech industries.

The president unveiled a new "innovation strategy" that builds on $100 billion of economic stimulus funds to support entrepreneurship, education, infrastructure and other investments.

The plan aims to make the U.S. economy more competitive and help prevent volatile "boom and bust" cycles in the

---

School Closings

Diseases and Outbreaks

Blizzards and Ice Storms

Hurricanes, Tsunamis, and Floods

Poll #2: Which of these have you experienced?

1. SARS
2. Earthquake
3. Tsunami
4. Winter Blizzard or Ice Storm
5. Major Flood
6. Hurricane, Typhoon, or Serious Tropical Storm
7. Swine Flu, Asian Flu, or Similar
8. Tornado
9. Near death weather-related situation
10. Other (not listed above)

H1N1 Solution #1.
Use Open Educational Resources
National Flu Readiness Initiative Taps Curriki for E-Learning,
Educ Week, Katie Ash on August 28, 2009

More from Solution #1.
Free Lessons from Smithsonian Education
http://www.smithsonianeducation.org/educators/

More from Solution #1.
Department of Education free lesson plans
http://www.free.ed.gov/

H1N1 Solution #2.
Public TV
e.g.,Mongolia teachers addressing H1N1
(Otgo Okhidoi, Nov 10, 2009)

H1N1 Solution #3.
Create Online Class Space for H1N1
(e.g., Microsoft Office Live, Google Sites)

H1N1 Solution #4.
Streaming Class Video for Remote Students
(e.g., Tegrity, Univ of Central Florida)

H1N1 Solution #5.
Webinars
(Elluminate, Dimdim, WebEx, Adobe Connect Pro)

What can you do?

- Take home course packets
- Post syllabus and content online
- E-books and other resources
- Fully online courses

What else can you do?

- Videotape master teachers
- Learning packets to be sent home
- Interactive study guides online
- Phone hotline for homework
- Online resources, textbooks, instructional websites, online databases, and Google Docs

(EdWeek.org)

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

Some Online Motivational Ideas

Ok, Million Dollar Question: How do you motivate online learners? What Words come to mind?

ONE BILLION DOLLARS

I even reflected on this for a moment...

TEC-VARIETY Model for Online Motivation and Retention

1. **T**one/Climate: Psych Safety, Comfort, Belonging
2. **E**ncouragement, Feedback: Responsive, Supports
3. **C**uriosity: Fun, Fantasy, Control
   ...
4. **V**ariety: Novelty, Intrigue, Unknowns
5. **A**utonomy: Choice: Flexibility, Opportunities
6. **R**elevance: Meaningful, Authentic, Interesting
7. **I**nteractive: Collaborative, Team-Based, Community
8. **E**ngagement: Effort, Involvement, Excitement
9. **T**ension: Challenge, Dissonance, Controversy
10. **Y**ields Products: Goal Driven, Products, Success, Ownership

TEC-VARIETY Model for Online Motivation and Retention

1. **T**one/Climate: Psych Safety, Comfort, Belonging
2. **E**ncouragement, Feedback: Responsive, Supports
3. **C**uriosity: Fun, Fantasy, Control
   ...
4. **V**ariety: Novelty, Intrigue, Unknowns
5. **A**utonomy: Choice: Flexibility, Opportunities
6. **R**elevance: Meaningful, Authentic, Interesting
7. **I**nteractive: Collaborative, Team-Based, Community
8. **E**ngagement: Effort, Involvement, Excitement
9. **T**ension: Challenge, Dissonance, Controversy
10. **Y**ields Products: Goal Driven, Products, Success, Ownership

1. Tone/Climate: (open, inviting)
A. Create a Class Wiki (Wikispaces)

2. Encouragement, Feedback, etc.:
A. Online Self-Testing (e.g., self study in vocabulary, anatomy, chemistry, dissection, etc.)

2. Encouragement, Feedback, etc.:
B. Practice Reading, Math, and Geography Skills (e.g., A Grain of Rice)

3. Curiosity, Fun:
A. Virtual Field Trips

Web brings national parks closer to kids

With virtual field trips, students can have a personal tour of Hawaii Volcanoes National Park.

Ranger Rachel Zimmer speaks with Syler Peralta-Ramos, a fourth-grader at Jackson Hole's Journeys School.

Gas prices fuel rise in virtual field trips

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

3. Curiosity, Fun:
B. Online Science. Species Portals
Ida (a transitional species); 47-Million-Year-Old Darwinius Masillae Fossil the Missing Link? (wowOwow, May 20, 2009)

4. Variety, Novelty:
A. Free Text Chats
(Bonk, 2007; Mei-Ya Liang, 2007)

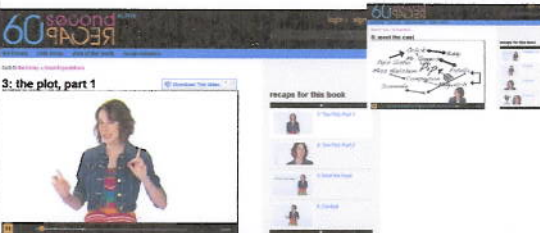## 5. Autonomy, Choice: A. Online Literature Search (Class Google Jockeys)

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

6. Relevance, Meaningfulness:
A. 60 Second Recap
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

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

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

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:
D. Monster Writing (describe monster in writing to partner and must draw it); monsterproject.wikispaces.com

7. Interactive, Collaborative:
E. Online Community and World Teams in Ning, Google Groups, or Yahoo Groups

8. Engagement, Effort:
A. Follow Online Adventure
Australian adventurer Don McIntyre and teenage circumnavigator Mike Perham to re-enact Capt William Bligh's epic mutiny on the Bounty open boat voyage, September 9, 2009

9. Tension, Challenge, etc.:
A. Adventure Learning
(e.g., Aaron Doering, Discovery Channel)

10. Yields Products, Goals:
A. Movie Festivals, Concept Maps, Video Blogs, Virtual Timelines, Digital Movies

Poll #3: 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 Learning Styles

The R2D2 Model

Empowering Online Learning

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.
Listen to Podcasts of Famous Literature, History, Politics, or Religion (e.g., Shakespeare, Dalia Lama,)

Poll #4: Podcast 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?

Read 1b.
Articles in Science Portals
(e.g., Complete Works of Charles Darwin, Einstein, etc.)

Read 1c. Art and History Exhibits

Read 1d. Online Portal & Resource Explorations
(Encyclopedia of Life, history, science, poetry, literature, etc.)
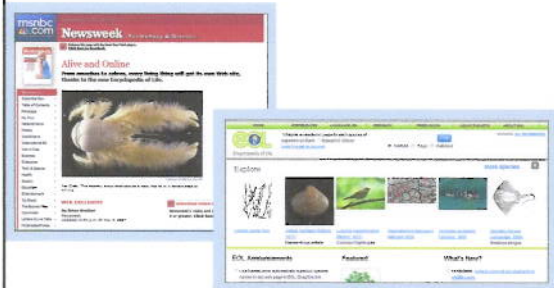
2. Reflective and Observational Learners

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

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

Reflect 2b. ORL or Library Day
(Bonk, 1999)

- Have students spend a day in the library or online finding and summarizing a set number of articles.
- Have them bring to class or post abstracts to an online forum.
- Share in small groups interested in similar topics.
- Perhaps give each student 1-2 minutes to describe what found in a chat.

3. Visual Learners

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

Display 3a. Online Timelines
(US Presidents)

Display 3b. Video iPod Vocabulary Training

One of Michelle Tanner's deaf students at Gerald Wright Elementary holds an iPod and watches a video of her signing the week's vocabulary words. The iPods were purchased with a grant from Qwest.

Classrooms go high-tech. By Erin Stewart, Deseret Morning News, March 6, 2007

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

Display 3d. United Nations Opens World Digital Library, April 21, 2009
Chronicle of Higher Ed, http://www.wdl.org/en/

Display 3e. Online Historical Document (e.g., Turning The Pages, British Library)
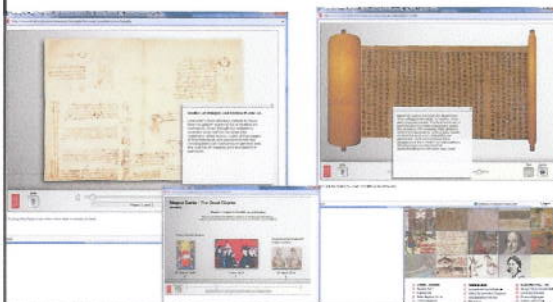
Display 3f. Online History Portals and Resources
(Civil Rights Digital Library and Amistad)

Display 3g. Download and Use Online 3D Sketches (Google SketchUp; download http://sketchup.google.com/3dwarehouse)
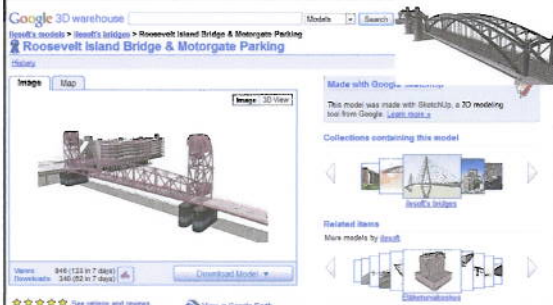
Display 3h. Explore Virtual Worlds and Online Representations (UCLAs CVRLab, Univ. of Virginia)

Display 3i. Shared Online Video (WatchKnow, Monkeysee, TV Lesson, TeacherTube, Link TV, CNN Video, Fora TV, etc.)

Display 3j.
Videos of the Periodic Table
(University of Nottingham)

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. Wikis for Kids to Share

Do 4c. Junior Wikibooks

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

Do 4e. Using Online Video (e.g., YouTube) to Memorize Sonnets and Poems

Recap of the Perfect E-Storm....
1. Emerging Technology
2. Escalating (Learner) Demands
3. Erased Budgets
4. Enhanced Teaching

Poll #5: How many ideas did you get from this talk?
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.

Try the R2D2 Method!!! Try TEC-VARIETY!!!
Sample papers :
http://www.publicationshare.com/
Archived talks:
http://www.trainingshare.com/