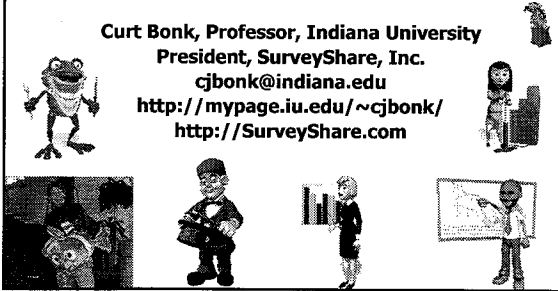


Designing Interactive Learning for Visually-Hungry Learners

Curt Bonk, Professor, Indiana University
 President, SurveyShare, Inc.
 cjbonk@indiana.edu
<http://mypage.iu.edu/~cjbonk/>
<http://SurveyShare.com>

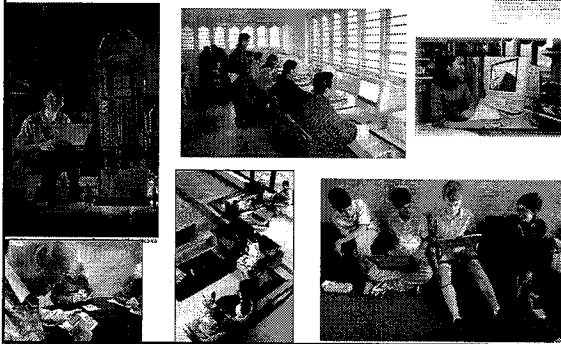


Poll #1. Does the Web offer enough visual opportunities today?

A = yes
 B = no
 C = not sure



Who is demanding visual learning?



Generations: Dealing with Boomers, Gen-X, and Beyond

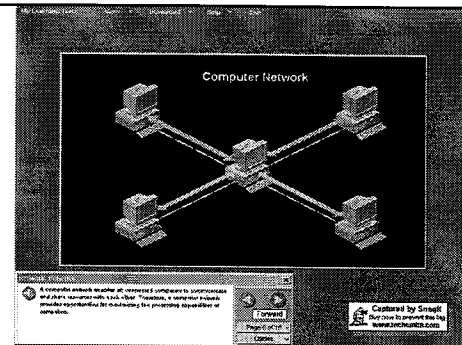
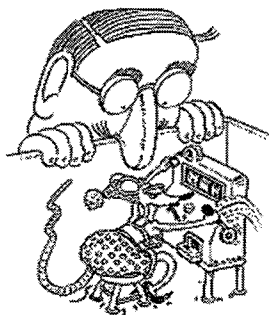
N. Boyce Appel, April 1, 2005, Practice Management Digest

Generalizations about Generations—Categorizations vs. Stereotypes

Generational Group	Born	Age	Stereotype
Silent Generation	1925 - 1942	61 - 78	Adaptive
Baby Boomers	1943 - 1960	43 - 60	Idealists
Thirteenth (Gen. X)	1961 - 1981	22 - 42	Reactive
Millennial (Gen. Y)	1982 - ?	13 - 21	Civic



Behavioristic Interactivity



Online PowerPoint?

Interaction: Xer

- "The skill to be valued in the twenty-first century is not the length of attention span, but the ability to multitask - to do many things well at once.... [and] the ability to process visual information very rapidly." (Rushkoff, 1996:50)

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)

Neomillennial Learning Styles

Planning for Neomillennial Learning Styles: Implications for Investments in Technology and Faculty
Chris Dede, Harvard University, Educause, 2005

- Fluency in multiple media--value all types of communication, activities, experiences, not a single best medium
- Actively seek, collect, and synthesize experiences, rather than absorb a single best source
- Active learning and collective reflection
- Non-linear and associated webs of learning
- Co-design of learning experiences for individual needs and preferences not pre-customized

Dual Coding Theory

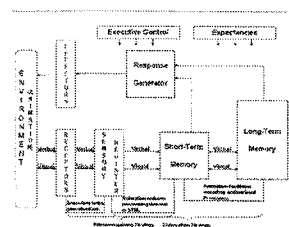


Figure 7.3 A Model of Retrieval, Dual Coding, and Information Processing.
Revised from "The Basic Model of Learning and Memory: Integrating Modern Information Processing Theories" by K. M. Gagne and M. P. DeGroot, 1986, *Foundations of Instruction in Instruction*, p. 15.

The promise of multimedia learning: Using the same instructional design methods across different media

Richard E. Mayer, *Learning and Instruction*, 13 (2003) 125-139.

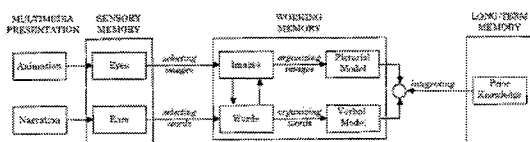


Fig. 1. A cognitive theory of multimedia learning.

The promise of multimedia learning: Using the same instructional design methods across different media

Richard E. Mayer, *Learning and Instruction*, 13 (2003) 125-139.

A review of research on the design of multimedia explanations:

- a multimedia effect: in which students learn more deeply from words and pictures than from words alone—in both book-based and computer-based environments,
- a coherence effect: in which students learn more deeply when extraneous material is excluded rather than included—in both book-based and computer-based environments,

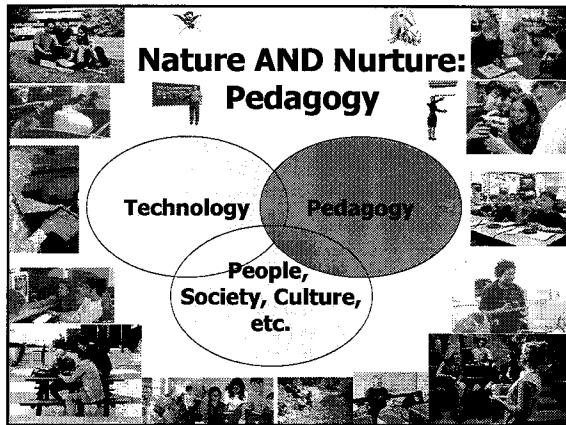
The promise of multimedia learning: using the same instructional design methods across different media

Richard E. Mayer, *Learning and Instruction*, 13 (2003) 125-139.

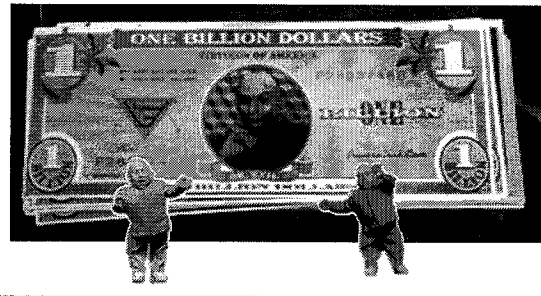
- (c) a spatial contiguity effect: in which students learn more deeply when printed words are placed near rather than far from corresponding pictures—in both book-based and computer-based environments, and
- (d) a personalization effect: in which students learn more deeply when words are presented in conversational rather than formal style—both in computer-based environments containing spoken words and those using printed words.



Part II: 40 Visual Learning Ideas

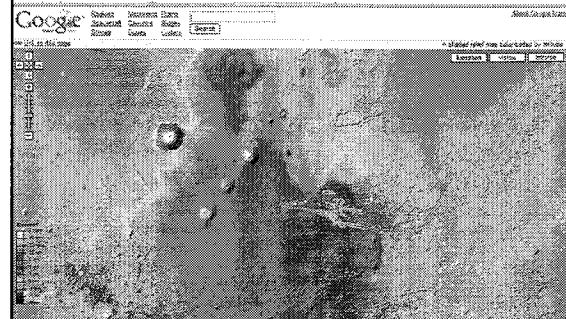


Ok, Million Dollar Question: How can you address visual learners online?

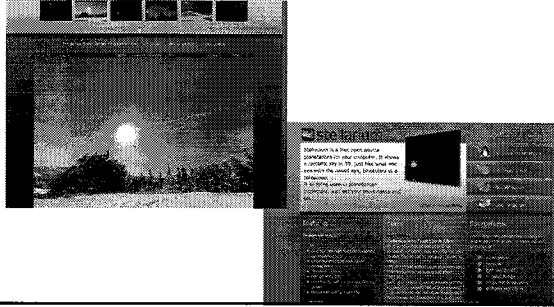


Visual Solution #1. Instructor Portal: e.g., self study in anatomy

Visual Solution #2. Electronic Cameras and Maps



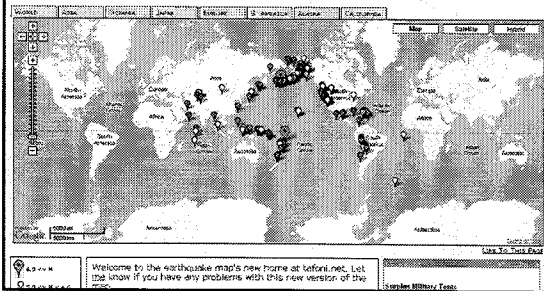
Visual Solution #3. Online Planetarium (open source: Stellarium)



Visual Solution #4. Use Google Maps Mashups in K-12 Education

By Jeffrey Branzburg, May 15, 2006
<http://www.techlearning.com/story/showArticle.jhtml?articleID=187002846>

Maps: Earthquakes in the last week



Visual Solution #5. Video Streamed Lectures and Expert Commenting

Streamed Class Sessions for 546

Department	Course ID	Section	Date	Part	Media Type	Stream (click to play)	Download
EDUC-P	546	00000	01/22/2005	Real	Real Player	Download (641.811K)	
EDUC-P	546	00000	01/15/2005	Real	Real Player	Download (694.241K)	

Visual Solution #6. Online Anatomy and Physiology (e.g., online autopsies)

INTERACTIVE CADAVER

CARDIOVASCULAR SYSTEM

- The pericardial sac map shows:
- The pericardial sac (PS)
- The pericardial cavity (PC)
- The pericardial reflection (PR)
- The pericardial reflection (PR) and pericardial reflection (PR)
- The pericardial reflection (PR) and pericardial reflection (PR)

Return to history

Visual Solution #7. Online Synchronous Cases and Teams; Simulated Boardroom Chat; College Wales, Univ. of Glamorgan

Task 2

Chat Area

Message History

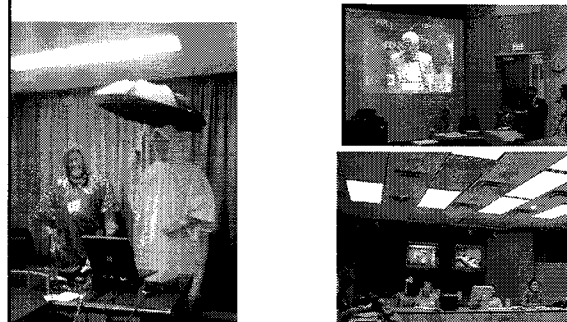
Who's Typing?

Who's in the Chat Area?

Board

Room

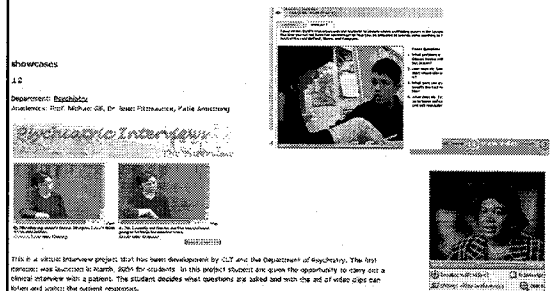
Visual Solution #8. Video Conferencing and Online Conferences Viewing



Visual Solution #9. Video Course Introductions
(examples from Northern Virginia Community College and Indiana University KD (online MBA) program)



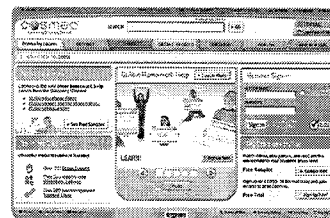
Visual Solution #10. Video Observations and Reflections (e.g., Virtual Psychiatric Interview, Trinity College, Dublin, e-Read First Ohio)



Visual Solution #11. Online Content Videos (e.g., Google Video, CNN Video, etc.)



Visual Solution #12. COSMEO: Online Homework Help from the Discovery Channel includes math homework help, 15,000 interactive learning quizzes, games, and puzzles, 27,000 research articles, and 30,000 video clips that correlate to state standards!!! And the collection is expanding daily (cost = \$9.95/month for up to 4 kids per family)



Visual Solution #13. REAL-World, 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.

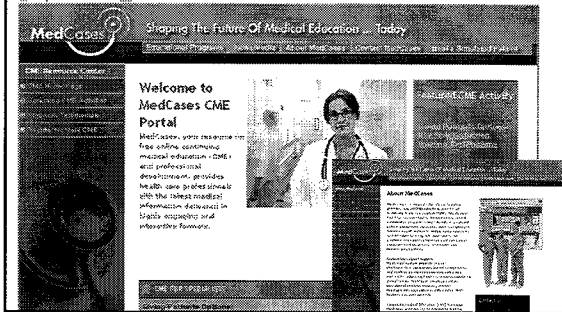


Visual Solution #14. Videoconferencing with Hearing Impaired Students Online

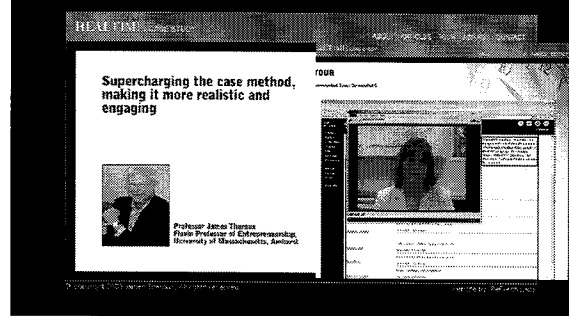
- College students tutoring high schools on their homework
- Instructors observing how teacher education students are doing in field placements (practice presentation and communication skills)
- Interpret speaker via Web cam



**Visual Solution #15. Professional Cases Online
(Medical, Business, Education, etc.)**



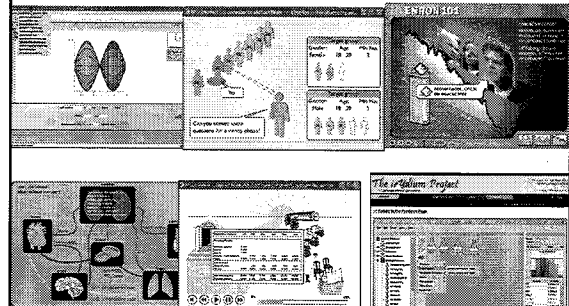
**Visual Solution #16. Real World Problems
(PBL online): Real-time Cases**



**Visual Solution #17. Explore Virtual Worlds and Online Representations
(UCLAs CVRLab)**



Visual Solution #18. 3-D Visualization & Laboratory Software



**Visual Solution #19. Current Events:
Interactive Online New Stories & Cases**



**Visual Solution #20. Adventure Blogging
= Reality Teaching and Learning
(Ben Saunders, Mark Fennell)**



What can we say about visual learning so far???

- It is everywhere!!!!!!!

- Resistance is futile!!!!!!!



Visual Solution #21. 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.



Visual Solution #22. 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 & background info
- Students work collaboratively to integrate multidisciplinary data & interpret age of site
- Interpret of ancient environments
- Analyze artifacts/fossils from site

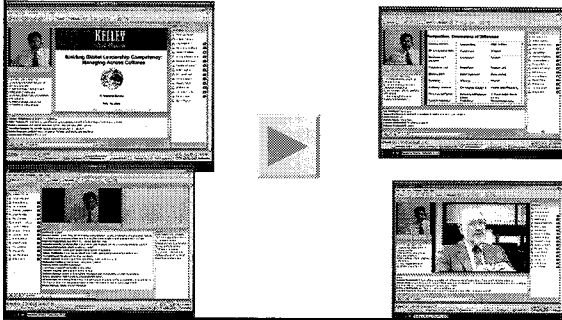


Visual Solution #23. Art and History Exhibits

Visual Solution #24. Expert Mentoring Online in

Art and Design (COFA Online, Omnium Project, Creative Waves—online graphics and photomedia project)

Visual Solution #25. Instructor Presentation in Synchronous Sessions (Breeze, Elluminate, WebEx, etc.)

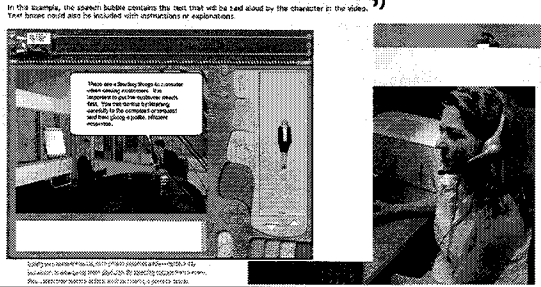


Visual Solution #26. Peer Critique in Breeze (Table of Benefits of Peer Critique; Park & Bonk, in press)

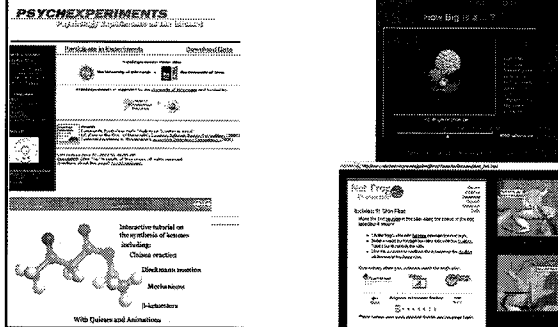
- Providing immediate feedback
- Increasing interactions among participants
- Encouraging to exchange multiple perspectives
- Enhancing dynamic interactions
- Promoting passive to become active
- Strengthening social presence allowing to exchange of emotional supports
- Apply skills just learned
- Exchange constructive feedback on each other's projects

Visual Solution #27. Educational Simulations

(HEALING GAMES: Computer simulations don't have to be violent -- they can give peace a chance, Scott Duke Harris May 21, 2006, San Fran Chronicle; and Medical Traumas from TD Magazine, August 2005)

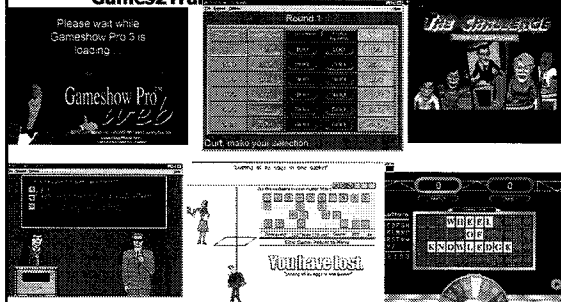


Visual Solution #28. Online Labs (e.g., Foreign Language Practice Exercises Online)



Visual Solution #29. Online Games e.g., Online Jeopardy Game

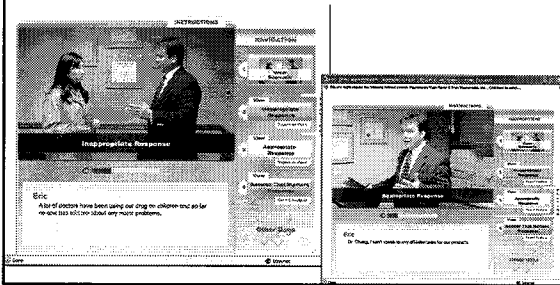
www.km-solutions.biz/caa/quiz.zip;
Games2Trai: TheChallenger.Thiaqi.com



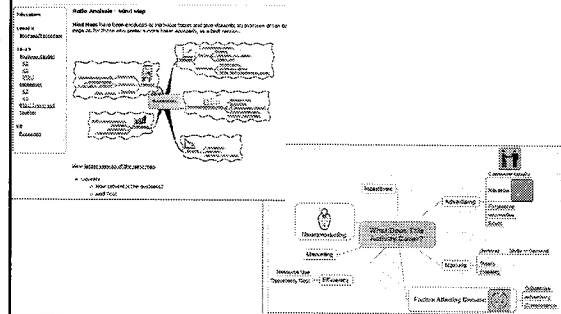
Visual Solution #30. Second Life and Virtual Worlds (Nick Yee, Stanford)



Visual Solution #31. Video Scenario Learning (Option 6, Arjuna Multimedia, Bloomington, IN)



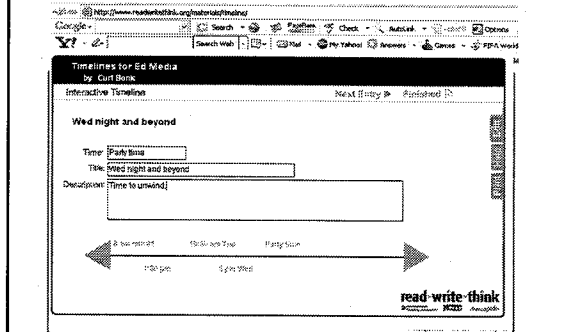
Visual Solution #32. Concept Mapping Tools



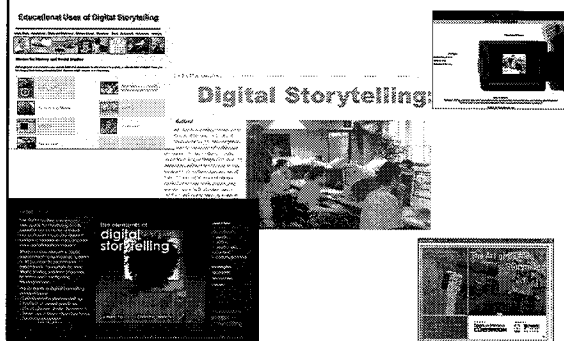
Visual Solution #33. Exploration and Demonstration: Virtual Fieldtrip and Tours



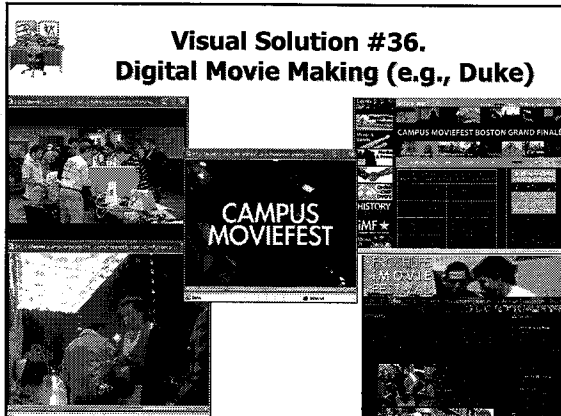
Visual Solution #34. Virtual Timelines



Visual Solution #35. Digital Storytelling



Visual Solution #36. Digital Movie Making (e.g., Duke)



Visual Solution #37. Vlogging (Video Blogs)

Chronicle of Higher Ed, May 11, 2007
An Anthropologist Explores the Culture of Video Blogging
By JEFFREY R. YOUNG; Michael Wesch, KSU, asst prof of cultural anthro

Visual Solution #38. Wikibook Project

(e.g., Junior Book (Dinosaurs))
http://en.wikibooks.org/wiki/Main_Page

Visual Solution #39. Wikis for the Romantic Poetry Project

Visual Solution #40. Encyclopedia of Life

By Brian Braiker, Newsweek, May 9, 2007

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

The End...Remember

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