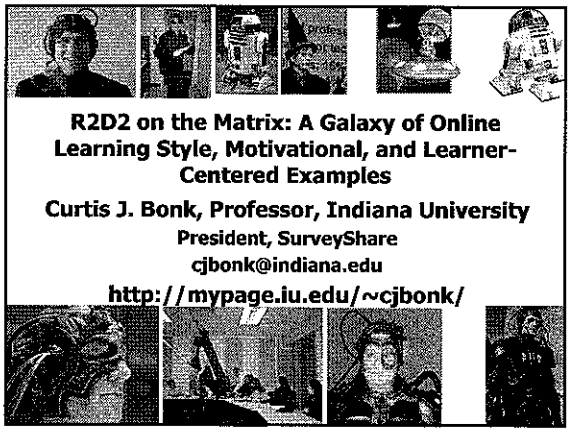
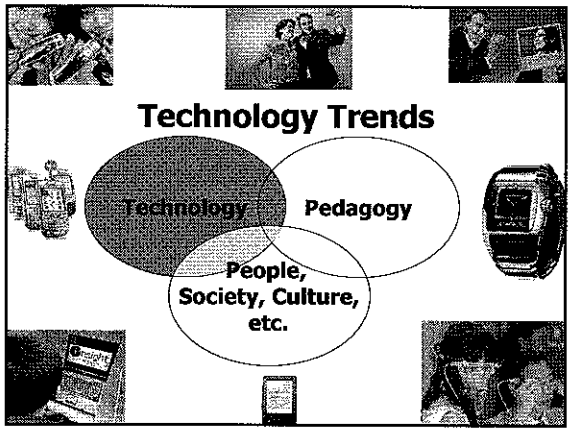
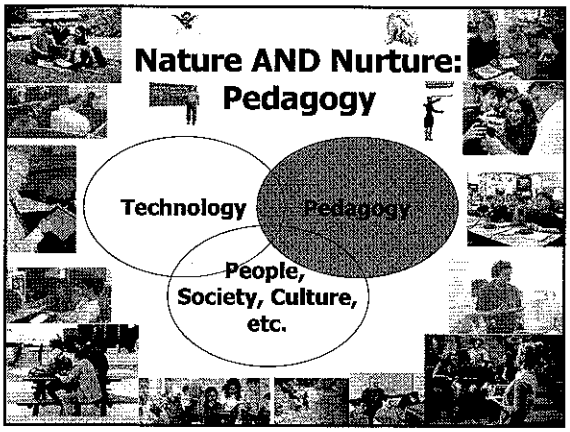


R2D2 on the Matrix: A Galaxy of Online Learning Style, Motivational, and Learner-Centered Examples

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



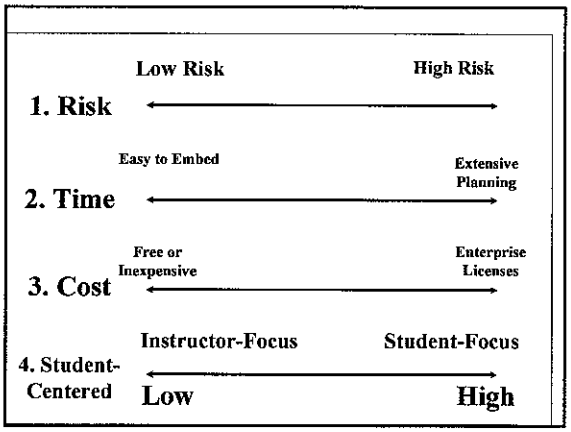
Technology Trends



Nature AND Nurture: Pedagogy

Task

- **Ideas definitely Can Use (Circle or write down)**
- **Ideas you might use (check off or write down in a separate column)**
- **Ideas you cannot use (cross off or put at the bottom)**



Part I: 10 Learning Centered Ideas

Experience. The difference.

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

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

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

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

2. Constructivistic Teaching Principles (Brooks, 1990)

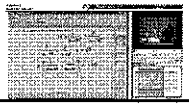
1. Build on student prior knowledge.
2. Make learning relevant.
3. Give students choice in learning activity.
4. Student autonomy & active lrng encouraged
5. Use of raw data sources & interactive materials
6. Encourage student dialogue
7. Seek elaboration on responses and justification
8. Pose contradictions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

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) Capture and Videostream Lectures
(e.g., Apreso CourseCaster)

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



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

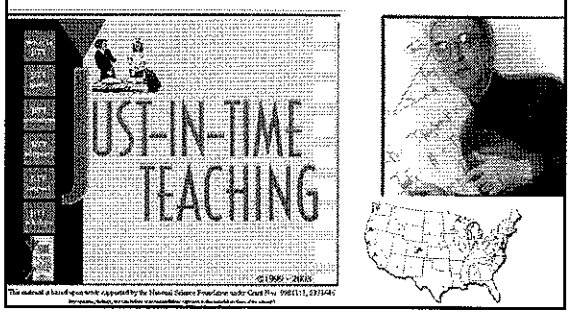
- Have students spend a day in the library or online finding and summarizing a set number of articles.
- Have them bring to class or post abstracts to an online forum.
- Share in small groups interested in similar topics.
- Perhaps give each student 1-2 minutes to describe what found in a chat.

4. 99 Second Quotes
(L = Cost, M = Risk, M = Time)

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

5: Online Warm-ups Activities
Just-In-Time-Teaching (JiTT)

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



6. One minute papers or muddiest point papers

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

- Have students write for 3-5 minutes what was the most difficult concept from a class, presentation, or chapter. What could the instructor clarify better.
- Send to the instructor via email or online forum.
- Optional: Share with a peer before sharing with instructor or a class.

7. Jigsaw

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

- Form home or base groups of 4-6 students.
- Student move to expert groups—discussion ideas in a chat.
- Share knowledge in expert groups and help each other master the material in an online forum.
- Come back to base group to share or teach teammates.
- Students present in group what learned.

8. Six Hats (Role Play):

(from De Bono, 1985; adopted for online learning by Karen Belfer, 2001, Ed Media) (L = Cost, M = Risk, M = Time)

- White Hat: Data, facts, figures, info (neutral)
- Red Hat: Feelings, emotions, intuition, rage...
- Yellow Hat: Positive, sunshine, optimistic
- Black Hat: Logical, negative, judgmental, gloomy
- Green Hat: New ideas, creativity, growth
- Blue Hat: Controls thinking process & organization

Note: technique was used in a business info systems class where discussion got too predictable!

9. Structured Controversy and Instructor (or student) Generated Virtual Debates

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

1. Select controversial topic (with input from class)
2. Divide class into subtopic pairs: one critic and one defender.
3. Assign each pair a perspective or subtopic
4. Critics and defenders post initial position statements in an online thread
5. Rebut person in one's pair
6. Reply to 2+ positions with comments or q's
7. Formulate and post personal positions.

10. Best 3 Activity

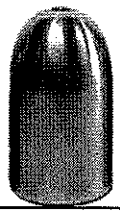
(Thiagi, personal conversation, 2003)

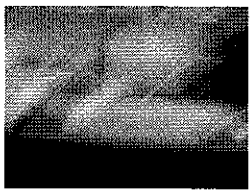
(L = Cost, L = Risk, L/M = Time)

- After a lecture, have students decide on the best 3 ideas that they heard (perhaps comparing to a handout or dense sheet of paper).
- Work with another who has 3 as well and decide on best 3 (or 4).
- Those pairs work with another dyad and decide on best 3 (or 4).
- Report back to class.

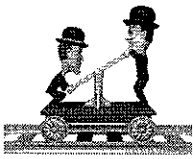
99 seconds: What have you learned so far?

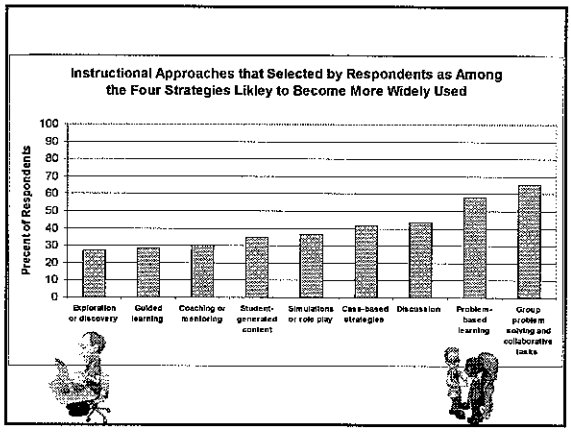
- Solid and Fuzzy in groups of two to four





Part II. Motivational Ideas





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:

A. Coffee House Expectations

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

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

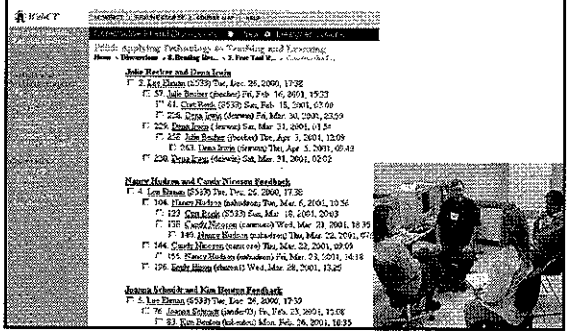
1. Tone/Climate: C. Scavenger Hunt

(Find Fellow Students Social Networking Software)

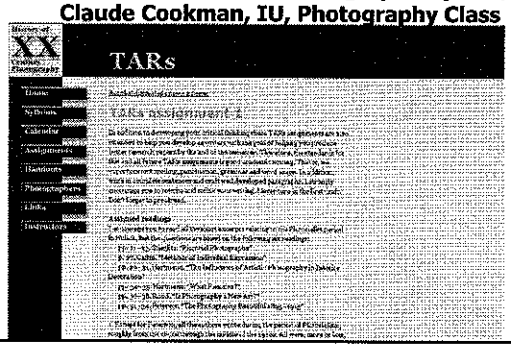
Create a 20-30 item scavenger hunt
Post scores

Oct 6, 2006, Chronicle

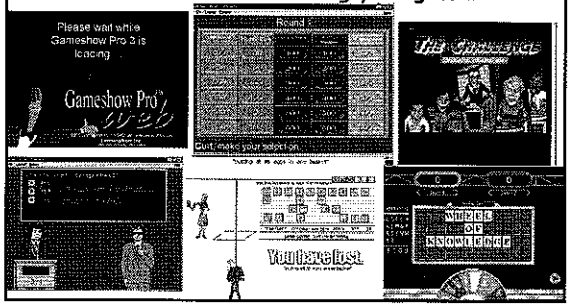
2. Encouragement, Feedback, etc.:
A. Critical/Constructive Friends, Email Pals...



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

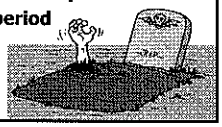


3. Curiosity, Fun: A. Games
e.g., Online Jeopardy Game
www.km-solutions.biz/caa/quiz.zip;
Games2Train: The Challenge; Thiagi.com

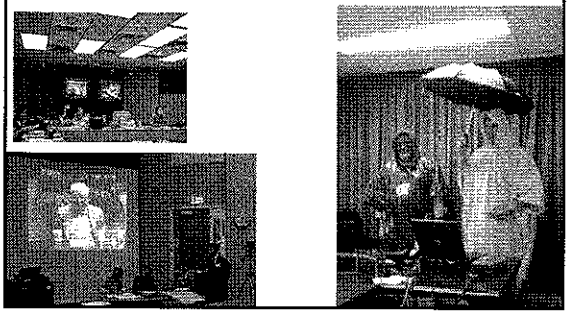


3. Curiosity, Fun:
B. Electronic Seance

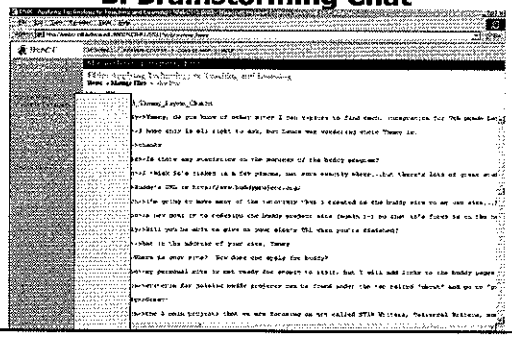
- Students read books from famous dead people
- Convene when dark (sync or asynchronous).
- Present present day problem for them to solve
- Participate from within those characters (e.g., read direct quotes from books or articles)
- Invite expert guests from other campuses
- Keep chat open for set time period
- Debrief



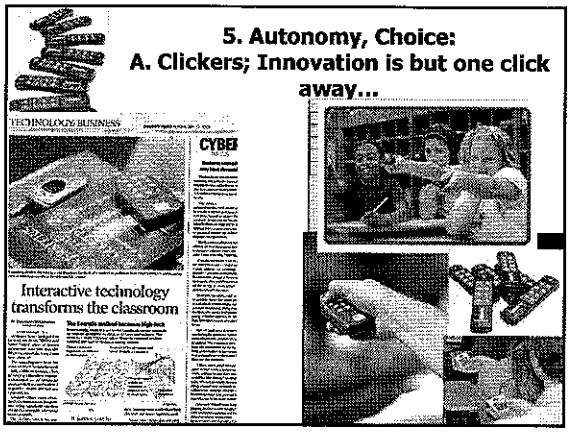
4. Variety, Novelty:
A. Video Streamed Lectures and Expert Commenting



4. Variety, Novelty:
B. Brainstorming Chat



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



5. Autonomy, Choice: B. Multiple Topics

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

6. Relevance: Meaningfulness: A. Workflow Learning (Shell Oil example)

- In this context, authentic work-based activities are learning activities that are anchored in workplace practice and that are focused on developing the participants' ability to solve problems in their everyday professional job roles (Merrill, 2002).

6. Relevance: Meaningfulness: B. 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

7. Interactive, Collaborative:

A. Panels of Experts: Be an Expert/Ask an Expert: Have each learner choose an area in which to become expert and moderate a forum for the class. Require participation in a certain number of forums (choice)

B. Press Conference: Have a series of press conferences at the end of small group projects; one for each group)

C. Symposia of Experts

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

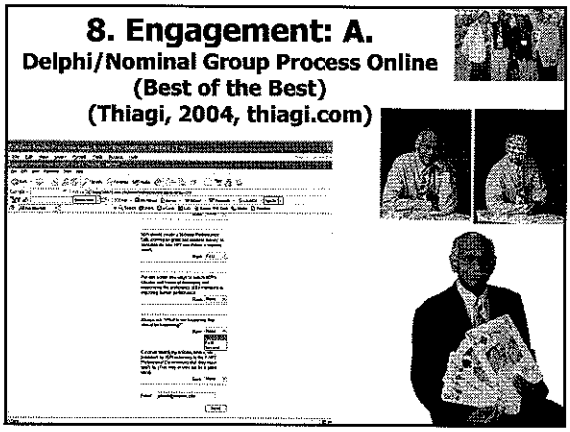
1. Starter reads ahead and starts discussion and others participate and wrapper summarizes what was discussed.
2. Start-wrapper with roles--same as #1 but include roles for debate (optimist, pessimist, devil's advocate).

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

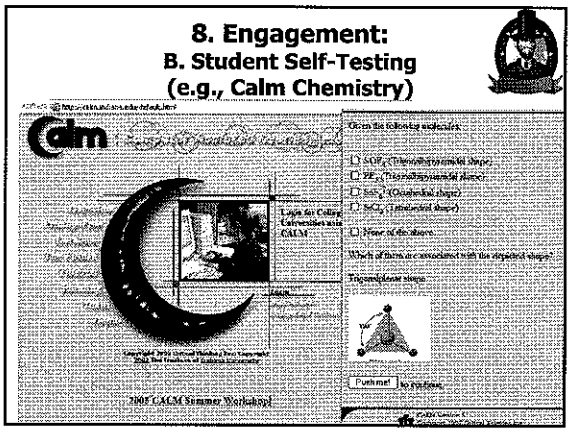
Instead of starting discussion, student acts as moderator or questioner to push student thinking and give feedback

8. Engagement: A.

Delphi/Nominal Group Process Online (Best of the Best) (Thiagi, 2004, thiagi.com)

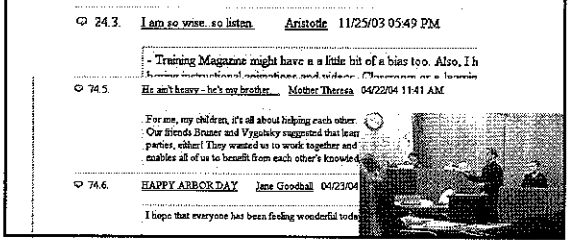


8. Engagement: B. Student Self-Testing (e.g., Calm Chemistry)

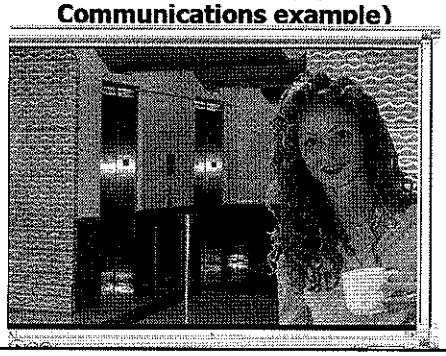


9. Tension, Challenge, etc.: A. Online Role Play of Famous People, Mock Trial, Debates, etc.

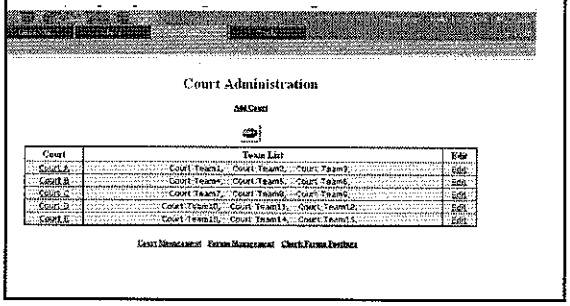
- Enroll famous people in your course
- Students assume voice of that person for one or more sessions



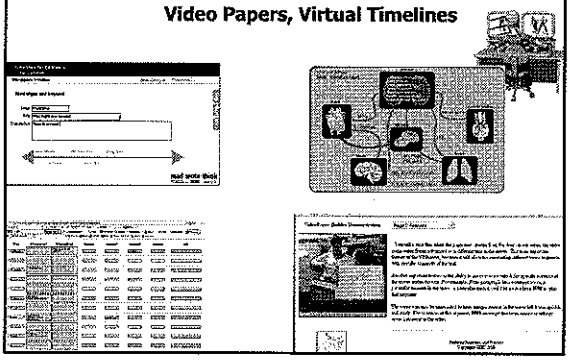
9. Tension, Challenge, etc.: B. Scenario Learning (Emmis Communications example)



9. Tension, Challenge, etc.: C. Court Room Forum (Bus Law)

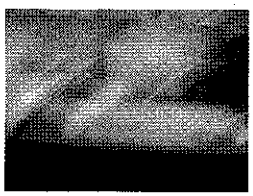


10. Yields Products: Concept Maps, Video Papers, Virtual Timelines



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

VARK learning styles (Fleming & Mills (1992a, 1992b): Four types of learners and learning styles:

(1) visual;
(2) auditory;
(3) reading/writing;
(4) kinesthetic, tactile, or exploratory,

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)

VARK learning styles (Fleming & Mills (1992a, 1992b). Four types of learners and learning styles

1. Visual learners prefer diagrams, flowcharts, graphics (they do not mention video, film, Webcasts, or PowerPoint presentations).
2. Auditory learners prefer to hearing directions, lectures, or verbal information.
3. Reading and writing learners prefer text passages, words, and written explanations.
4. Tactile or kinesthetic learners learn best by connecting to reality through examples, practices, or simulations.

Kolb (1984)

- **According to Kolb, effective learning involves four phases:**
  - **from getting involved (Concrete Experience) to**
  - **listening/observing (Reflective Observation) to**
  - **creating an idea (Abstract Conceptualization) to**
  - **making decisions (Active Experimentation).**
- **A person may become better at some of these learning skills than others; as a result, a learning style develops.**

One View of Learning Styles

Abstract Conceptualization vs. Concrete Experiences

- (**AC**) - I am rational and logical.
- (**CE**) - I am practical and down to earth.

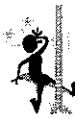
- (**AC**) - I plan events to the last detail.
- (**CE**) - I like realistic, but flexible plans.

- (**AC**) - I am difficult to get to know.
- (**CE**) - I am easy to get to know.

Active Experimentation vs. Reflective Observation

- (**AE**) - I often produce off-the-cuff ideas.
- (**RO**) - I am thorough and methodical.

- (**AE**) - I am flexible and open minded.
- (**RO**) - I am careful and cautious.



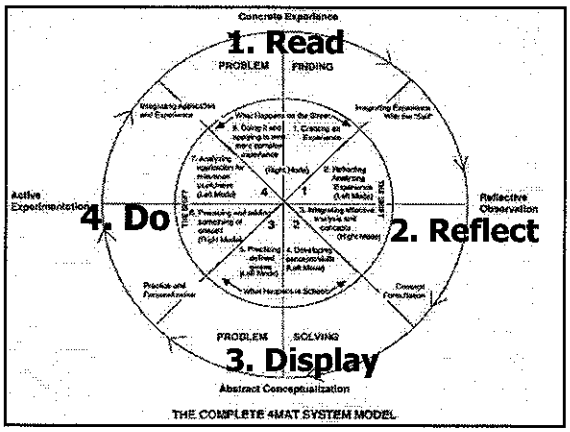
- (**AE**) - I am loud and outgoing.
- (**RO**) - I am quite and somewhat shy.

Index of Learning Styles Questionnaire

Barbara A. Soloman, North Carolina State Univ
http://www.engr.ncsu.edu/learningstyles/ilsweb.html

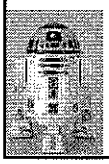
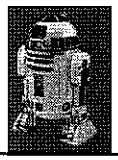
6. If I were a teacher, I would rather teach a course
   - ○ (a) that deals with facts and real life situations.
   - ○ (b) that deals with ideas and theories.

7. I prefer to get new information in
   - ○ (a) pictures, diagrams, graphs, or maps.
   - ○ (b) written directions or verbal information.



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

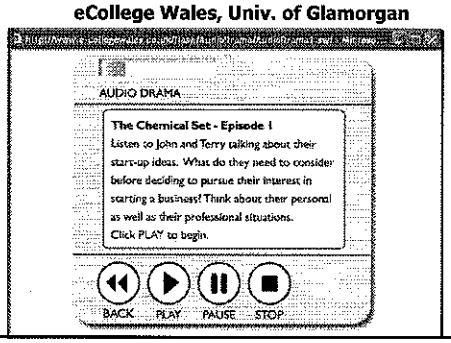
- **Auditory and verbal learners prefer words, spoken or written explanations.**



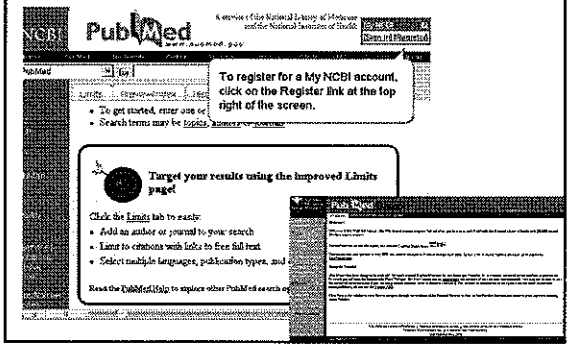
1a. Online Audio Cases

Audio Dramas

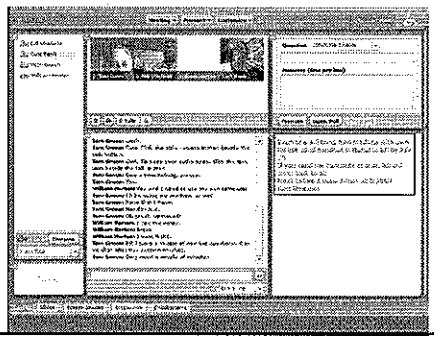
eCollege Wales, Univ. of Glamorgan



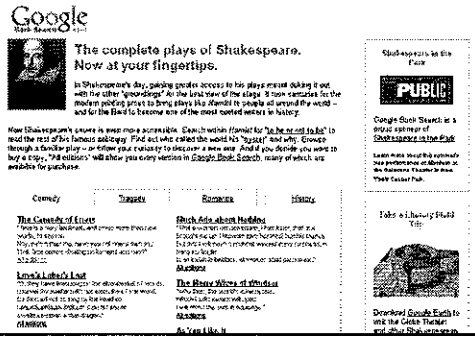
1b. Online Tutorials and Help



1c. Synchronous Conferencing



1d. Online Literature and Free Books



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. Post Model Answers

Employment Law and Ethics Project

Question 1

Would it be illegal for Laura to recommend Billings instead of Lewis? Explain, being specific about the legal doctrines that would apply?

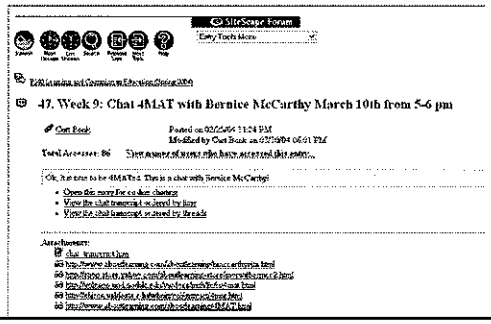
Answer 1

Under both Title VII of the 1964 Civil Rights Act and Section 1981 it is illegal to discriminate on the basis of race or color, and Lewis would likely win a lawsuit using the claim of disparate treatment if he were not recommended for the promotion. If Laura does not recommend Lewis, she is guilty of violating the law. None of the three primary defenses—seniority, merit, or bona fide occupational qualification—apply to this situation since Lewis has higher seniority, equal skills, and more direct experience with power tools, than does the other candidate Frank Billings.

Title VII "prohibits discrimination based on race, color, religion, sex, and national origin in hiring, firing, job assignments, pay, access to training and apprentice ship programs, and most other employment decisions." ARFCO is a covered entity under Title VII because they are "employing 15 or more employees and engaging in an industry affecting interstate commerce" and as the case footnotes point out "as of November 21, 1991, the Civil Rights Act of 1991 extended protection from discrimination in employment to U.S. citizens working in foreign countries while employed by U.S. firms."

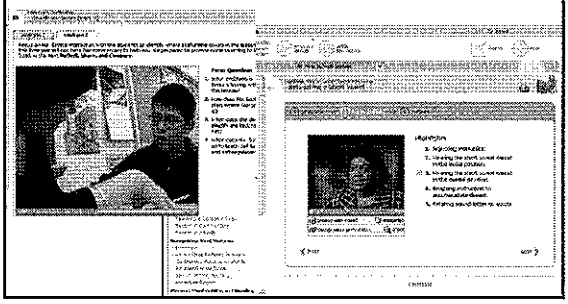
In this case, Title VII's disparate impact is not applicable since ARFCO's policy clearly states to "promote the most

2b. Reuse Chat Transcripts



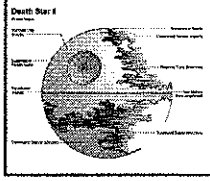
2c. Video Streaming: Math Emporium of Online Tutorials and Testing (Virginia Tech, Robert Olin)

2d. Reflection Sheets and Scaffolds online (E-Reading First Ohio) (reflect, share, and compare)

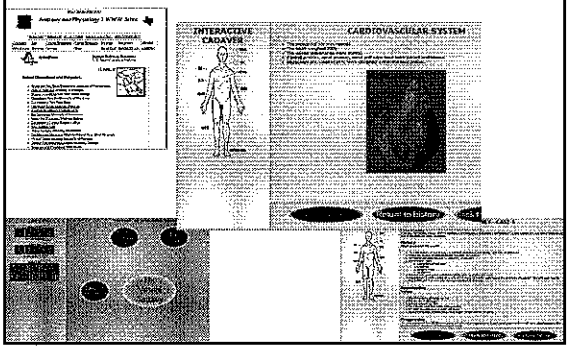


3. Visual Learners

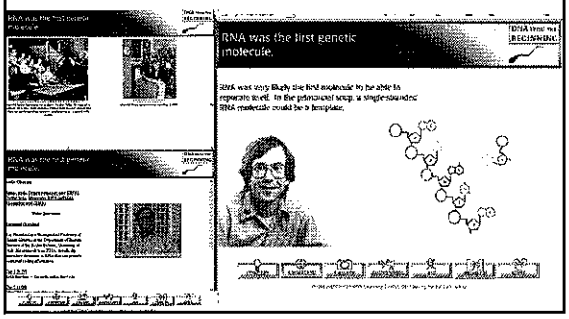
- **Visual learners prefer diagrams, flowcharts, timelines, pictures, films, and demonstrations.**



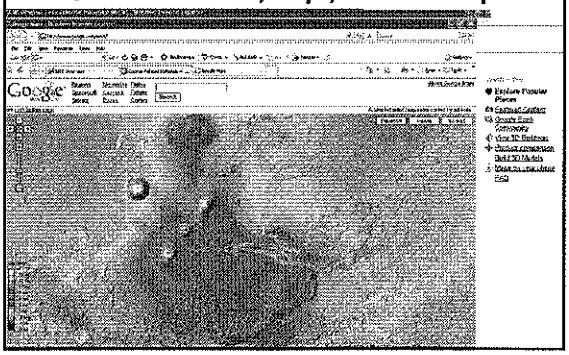

3a. Online Anatomy and Physiology



3b. Animations, Video Clips, Audio, Pictures, Web Resources, etc.

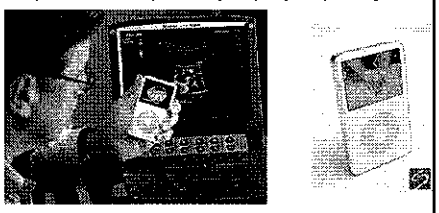


3c. Virtual Tours, Maps, and Field Trips



3d. Vodcast for Medical Training

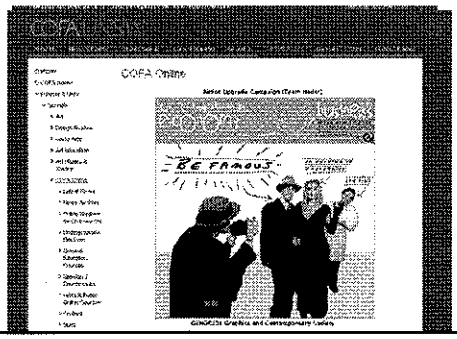
(e.g., "SonoSite on the small screen: The Bothell-based company uses podcasts for its ultrasound scanner training," *By Eric Fetters, Herald Writer*, Everett, WA, Sept 25, 2006)



Dan Bates / The Herald, Sept 25, 2006
David Levesque, vice president of global learning at SonoSite in Bothell, demonstrates the company's new podcast training for ultrasound technicians.

3e. Expert Mentoring Online in Art and Design

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

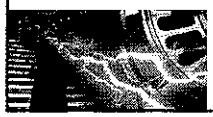


3f. Historical Documents discoverbabylon.org

- **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.**

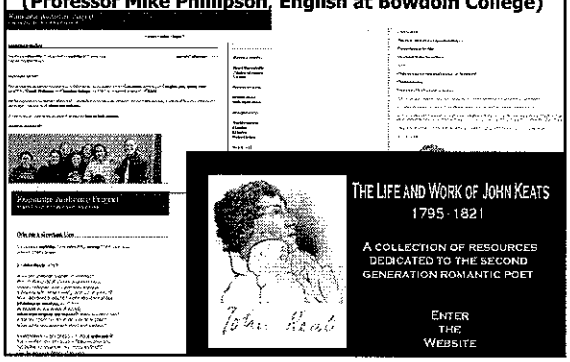
4. Tactile/Kinesthetic Learners

- 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. Romantic Poetry Project

(Professor Mike Phillipson, English at Bowdoin College)



4b. 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

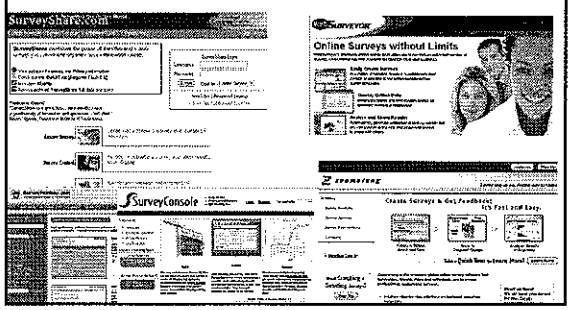
4c. Practicing Language Skills in Skype and Google Talk

4d. Virtual Worlds/Virtual Reality/MMOG

First Course in a Virtual World (Second Life)

4e. Survey Research and Market Analysis

(e.g., WebSurveyor, Zoomerang, SurveyShare, SurveyKey)



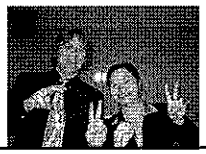
Next up: The MATRIX!!!!!!!!!!!

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

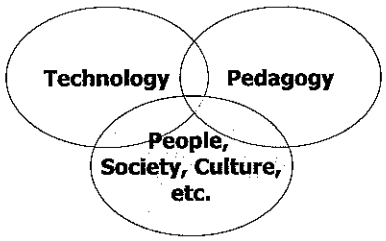
Try the R2D2 Method!!!

Stand and Share

- Will Work: _____
- Might Work: _____
- No Way: _____



Nature and Nurture: An Interactional Model



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

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Archived talks at: http://www.trainingshare.com/