A Galaxy of Online Learning Style Ideas and Generational Learning Preference Comparisons

Curt Bonk, Professor, Indiana University
President, SurveyShare, Inc.
cjbonk@indiana.edu
http://php.indiana.edu/~cjbonk
http://SurveyShare.com

---

Effects of interactive multimedia in distance learning

Giti Javidi and Ehsan Sheybani, 2004, In Proceedings of the IASTED International Conference WEB-BASED EDUCATION

"The advancement in technology is shaping every aspect of our life, including education. One decade ago, the Internet was not critical to education. However, now, it has become an integral part of learning process. Internet technology is having a dramatic effect on colleges and universities, producing what may be the most challenging period in the history of higher education."

Generational Learning Styles

Boomers & Gen-Xers & Millennials

UNDERSTANDING THE NEW STUDENTS
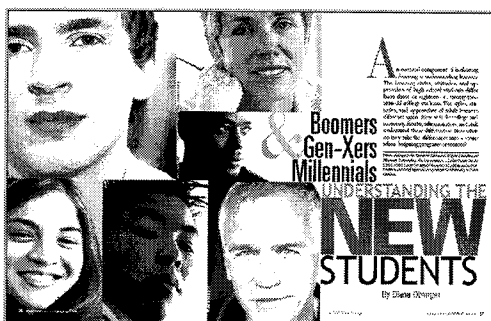
Students Returning to Campus with High Tech War Chest

Syllabus Magazine, August 24, 2004

90% own computer (65% broadband connect)
86% a calculator
84% a television
77% a cell phone
77% a printer
74% a DVD player
70% play games with phone
62% own a stereo
62% of 18 to 24 yr old text message with phone
55% own a gaming system.
41% with cell phones access Internet

Gadgets rule on college campuses

INFORMATION TECHNOLOGY

For Many Students,
One Computer
Is Not Enough

Boomers, Gen-Xers, and Millennials: Understanding the "New Students", Diane Oblinger, Educause, July/August, 2003

Millennial Learning Preferences: (study of students age 12-17)

1. Email—81 percent
2. Instant messaging—70 percent
3. Internet for research—94 percent
   1. Also blogs, PDA, cell phones, wikis, etc.

University students:
1. Own a computer—84 percent

Demand for Internet in US
(Special MSNBC report, Dec 13, 2004)

Generation raised on Internet comes of age
Online interaction considered just normal part of life

Age and Interaction Preferences

- Older people prefer less interaction than younger people in distance education (Kearsley, 1995).
- Older trainees prefer private implementation activities (i.e., individual learning), not small group discussions (Vampola, 2001).

Boomers, Gen-Xers, and Millennials: Understanding the "New Students", Diane Oblinger, Educause, July/August, 2003

Nontraditional Students:

- Delayed enrollment
- Attend part-time
- Work full-time
- Are financially independent
- Have dependents
- Are single parents
- Lack a high school diploma

The Generations
HIGHER EDUCATION, BLENDED LEARNING AND THE GENERATIONS: KNOWLEDGE IS POWER-NO MORE, Dziuban, Moskal, & Hartman (in review)

- Mature/Silent: prior to 1946
- Baby Boomers: 1946-1964 (or 1961)
- Gen Xers: 1965-1981 (or 1961-80)
- Millennials: 1982-??? (the new learner, the Net Generation, Generation Why?, Nexters, the Internet Generation)
- Neomillennials???

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

Differences between Boomers and Gen Xers
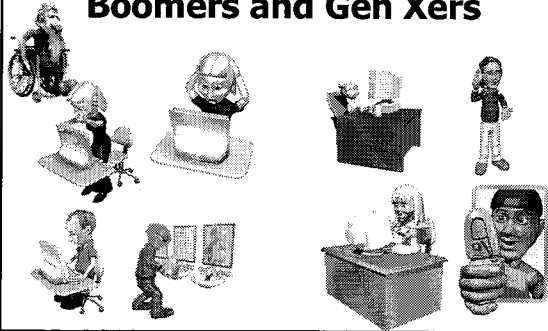
Generation Xers
The Bresnahan Group 2000

- One thing Generation Xers don't like is being called "Xer!" This is due to a lot of negative publicity.
- So, are Generation Xers the lazy, whining, cynical, disloyal, arrogant, scatterbrained people they are purported to be?

Generation Xers
The Bresnahan Group 2000

- They look for a manager who will coach and develop them, invite them to contribute, and recognize their efforts. If this atmosphere is not provided, they will leave when the opportunity presents itself.

Generation Xers
The Bresnahan Group 2000

- Xers regard companies as places to grow, not places where they will grow old. Their focus is on gaining skills and knowledge that will qualify them for the next job.

Generation Xers
The Bresnahan Group 2000

- They focus on the end results, therefore it is important to know upfront why information is needed. They like to be involved and look to control their own destinies. They resent and resist being force-fed.

Independence: Boomer (from Learning: Generation Does Matter, Leslie Darling, CLO, Element K, CLO Magazine)

- Dependence on instructor or authority figure to define and support learning.
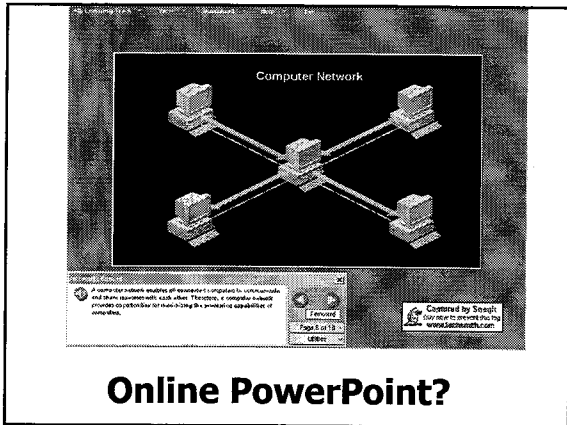
Online PowerPoint?

Independence: Xer (from Learning: Generation Does Matter, Leslie Darling, CLO, Element K, CLO Magazine)

- Having grown up for the most part with both parents working/furthering their education, Xers are used to getting things done on their own. Hence, they tend to be independent problem solvers and self-starters. They want support and feedback, but they don't want to be controlled. (**Brown, Bettina Lankard, 1997**)

Technology: Boomer (from Learning: Generation Does Matter, Leslie Darling, CLO, Element K, CLO Magazine)

- Most boomers became aware of computer technology later in their education or in their careers. The computer is seen as a "nice to have" tool to do things they used to do manually or with paper and pencil. The translation of "how would I do this with the computer" is usually made.

Technology: Xer (from Learning: Generation Does Matter, Leslie Darling, CLO, Element K, CLO Magazine)

- Generation Xers are technologically literate because they grew up with computers as part of their working world. They consider computer technology as a "need to have," not a "nice to have." Technology is an expected way of accessing information.

Entice with Technology Giveaways

Gen Xers in Workplace (the diffs)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- **More collaborative and independent**
- **Less hierarchical**
- **More altruistic**
- **Good at dealing with change**
- **More comfortable with women bosses**
- **More skilled in management**

Gen Xers in Workplace (the diffs)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- More tech-savvy (the first real information-age generation)
- Candid in communication
- Self-reliant
- Rule-shy
- Not intimidated by authority
- Creative
- Strive for real balance between work and private life
- Desire workplaces that feel like communities

Gen Xers in Workplace (worst things)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- Fear-based environment
- Poor time management
- Micromanagement
- Politically based culture
- Indirect communication
- Opinions and ideas ignored
- Prevalence of lip service, not action

Gen Xers in Workplace (worst things)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- Failure to give feedback and regular performance reviews
- Meaningless raises
- Insincere, gratuitous "thank you's"
- People thrown into jobs without training
- Disorganized, cluttered, or dirty workplace
- Not telling the "why's"
- "Because I said so" or similar attitudes
- Unacceptable staff behavior overlooked.

Gen Xers in Workplace (best things)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- Team-based management
- Diversity
- Exploration
- Experimentation
- The idea is the power, not the person
- Team and individual credit
- "Resume building" opportunities.

Gen Xers in Workplace (best things)
N. Boyce Appel, April 1, 2005, Practice Management Digest

- Appreciate us. Show you care.
- Be flexible. Let us have a life beyond work.
- Create a team. Give us the family we never had.
- Develop us. Help us to increase our skills.
- Involve us. Ask our opinions.
- Lighten up. Remember, it's not brain surgery.
- Walk your talk. Practice what you preach.

Gen Xers
(Neil Yamashiro, 1998, US Army National Guard)

- Cynical, have different values, distrust older generation, have a distorted view of reality, spent a lot of time alone, products of divorce, competitive, do not feel loyalty to an organization, believe in getting what they can—situational ethics, desire instant gratification without having to work for it, independent

Boomers, Gen-Xers, and Millennials: Understanding the "New Students", Diane Oblinger, Educause, July/August, 2003

Attributes of the info age mindset:
- Computers are not technology
- Believe it is cool to be smart
- Are fascinated by new technologies
- Reality is no longer real
- Doing is more important than knowing
- Learning more like Nintendo than logic
- Multitasking is a way of life
- Typing preferred over handwriting
- Staying connected is essential
- There is zero tolerance for delays
- Consumer and creator are blurring

Prefer online to traditional!

EDUCATION with Student News

Students prefer online courses

Classes popular with on-campus students

Friday, January 13, 2006: Posted: 3:18 p.m. EST (20:18 GMT)

(AP) -- Andy Steele lives just a few blocks from the campus of Black Hills State University in Spearfish, South Dakota, so commuting to class isn't the problem. But he doesn't like lectures much, isn't a morning person, and wants time during the day to restore motorcycles.

So Steele, a full-time senior business major, has been taking as many classes as he can from the South Dakota state system's online offerings. He gets better grades and learns more, he says, and

Andy Steele takes an online course the library of Black Hills State University

---

Relevance: Boomer

- Learn "what" or "how" first, and the "why" may come later as part of experience.

Relevance: Xer

- "What's in it for me?" is a question to which Gen Xers require the answer before they take the time to learn what or how.

Lifelong Learning: Boomer

- An expectation of working in the same organization for the life of your career. The concept of learning is based on specific events (college education, specific training programs).


Lifelong Learning: Xer

- Generation Xers do not expect to grow old working for the same company, so they view their job environments as places to grow. Learning is considered a continual process. They seek continuing education and training opportunities; if they don't get them, they seek new jobs where they can continue learning!

6

Simulation: Boomer

- Life experienced at a slower pace promotes an expectation of "it's ok to wait." Learning experienced from an early age as lecture with drill and practice without stimulation/response. Gaming as part of a learning context may be considered less effective because it is less "serious" and in some cases can be distracting.

Behaviorist Interactivity
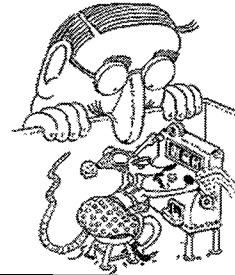
Simulation: Xer

- Conditioned to expect immediate gratification (they grew up with drive-through fast food, remote controls, automatic teller machines and microwave ovens), and an expectation that learning should be stimulating and fun (Sesame Street). Generation Xers crave stimulation and expect immediate answers and feedback.

Simulation: Xer

- Genxers have a rapid-fire information consumption capability. Rushkoff argues that many of the things for which this generation is maligned, such as short attention spans and lack of ability to concentrate on a single task at once are not problems but actually brilliant coping mechanisms for a world overloaded with information.

Simulation: Xer

- To older generations, "Xers seem impatient for answers, always demanding information, asking questions, and pursuing multiple lines of enquiry simultaneously. What looks to some [adults] like a lack of attention in Xers is, rather, a rapid-fire style of interacting with information which comes naturally to us as children of the information revolution." (Tulgan, 1995:173)

Simulation: 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)

Comfort with Unknown: Boomer

- Discomfort is avoided. If I don't know how, I ask for assistance. "Trying it on your own" activities are not the norm.

Comfort with Unknown: Xer

- As illustrated by their involvement in extreme sports such as bungee jumping and sky surfing, Generation Xers are fearless. (<u>Brown, Bettina Lankard, 1997</u>)
- Hand-holding and baby steps are not expected and in some cases resented. Challenge is expected more than comfort.
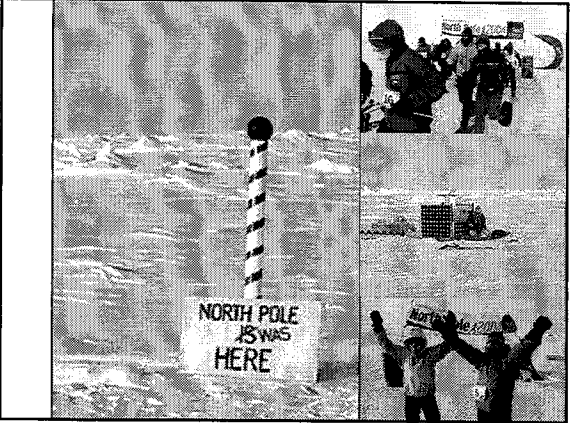
Learner Control: Boomer

- The traditional instructor-focus is what is expected. The instructor determines what is important to learn and how it should be learned. Consistency and control are maintained with the "tell me, tell me, tell me" approach.

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.

Millennials Least Favorable to Blended—Why?
HIGHER EDUCATION, BLENDED LEARNING AND THE GENERATIONS:
KNOWLEDGE IS POWER-NO MORE, Dziuban, Moskal, & Hartman (in review)

Perhaps cannot relate to technologies offered to these students. Millennials say:

"I spend more time reading and reviewing without the professor telling me everything there is to know."

"I respect myself more as a self-teacher."

"Learning that takes place in the classroom isn't as important as time studying on your own."

"Online gives me something to do when I'm bored with the professor."

Boomers, Gen-Xers, and Millennials: Understanding the "New Students", Diane Oblinger, Educause, July/August, 2003

Millennial Learning Preferences:

• **Teamwork**

• **Experiential activities**

• **Structure**

• **Use of technology**

Neomillenial 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, rather than working in a single best medium
• Actively seek, collect, and synthesize experiences, rather than absorb a single best source
• Active learning with opportunities for collective reflection
• Non-linear and associated webs of learning rather than linear stories
• Co-design of learning experiences personalized to individual needs and preferences instead of pre-customized

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

• **Blended/personalized places (not specialized computer labs)**
• **Mobile wireless computing**
• **Avatars and personal agents**
• **Smart objects**
• **Virtual worlds**
• **Augmented reality**

MAY 1, 2006, Business Week Online: My Virtual Life
A journey into a place in cyberspace where thousands of people have imaginary lives.

Digital Movies of Campus Life

Future of Instruction

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

- Learners influence design of content, pedagogy, and assessment based on individual preferences and needs
- Knowledge sharing among students as a major source of content
- Guided social constructivism and situated learning as major forms of pedagogy
- Case-based participatory simulations complement presentational/assimilative instruction
  - Current = passive, one size fits all

Interactivity & Continuing Motivation

- "The convenience is nice, but that's not what keeps it. It makes you want to try it, but it's not what keeps you interested in it. It's got to have more interaction. It doesn't hold my interest as long as what I think it should, and I think if there was some more interactivity of a program, then it would really keep my interest more, and I would be more enthused about taking more courses."
- *An adult student who took a Dreamweaver course*

---

Reasons for Not Completing the Course (KJ Kim, 2005)

Reason	Frequency	Percent
1. I was too busy.	19	5.2
2. The content was not relevant to me.	14	3.8
3. It was too boring.	14	3.8
4. There were technical difficulties.	9	2.4
5. I got all the information that I needed to get from the course.	9	2.4
6. Other	7	1.9
Total	79	100.0

Implications of the Findings (KJ Kim, 2005)

Principles for Designing Self-Directed e-Learning Environments to Sustain or Increase Learner Motivation

1. Provide learners with content that is relevant and useful to them.
2. Include multimedia presentations in the course that simulate the learner's interest.
3. Include learning activities that simulate real-world situations.
4. Provide learners with content that the difficulty level that is just right for them.
5. Provide learners with hands-on activities that engage them in learning.
6. Provide learners with enough feedback on their performance.
7. Design the Web site that is easy to navigate.
8. Design the course in a way that the learner is satisfied with the overall learning experience.
9. Incorporate some social interactions in the learning process (e.g., interaction with instructor, technical support staff, or animated pedagogical agents).

Addressing Learning Styles
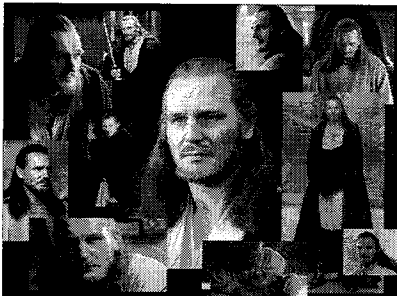
Why Address Learning Styles?

- 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

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.**

The Blending of Learning Styles
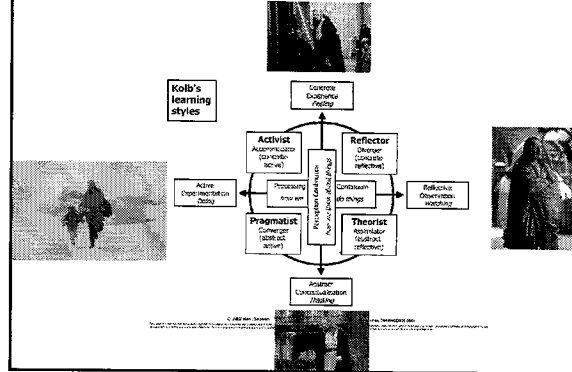
Index of Learning Styles Questionnaire
Barbara A. Soloman, North Carolina State Univ
http://www.engr.ncsu.edu/learningstyles/ilsweb.html

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 COMPLETE 4MAT SYSTEM MODEL

---

1. Auditory or Verbal Learners

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

1a. Online Resource Libraries

1b. Online Audio Cases
Audio Dramas
eCollege Wales, Univ. of Glamorgan

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, then 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 apprenticeship programs, and most other employment decisions." ARPCO 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 ARPCO's policy clearly states to "promote the most

2b. Reuse Chat Transcripts

3. Visual Learners

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

Dual Coding Theory (DCT)

- Dual Coding Theory (DCT), proposed by Paivio in 1972, is a model that is based on Cognitive Information Processing Theory. DCT model assumes that information is processed and stored in memory by two separate, but interconnected systems - one visual, the other verbal. DCT claims that pictures are faster and easier to recall since they are coded in both memory systems and the visual system is continuous and parallel in its organization. Verbal memory, on the other hand, is structured in discrete, sequential units.
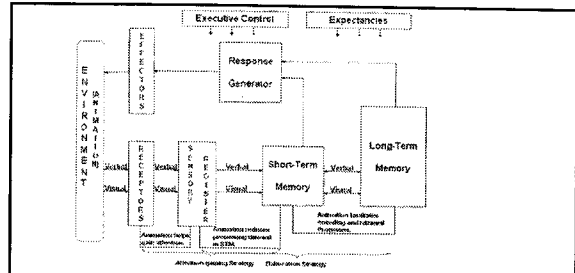
Figure 1. A Model of Animation, Dual-Coding and Information Processing

Revised from "The Basic Model of Learning and Memory Underlying Modern Information Processing Theories," by R. M. Gagne and M. P. Driscoll, 1988, *Essentials of learning for instruction*, p. 13.

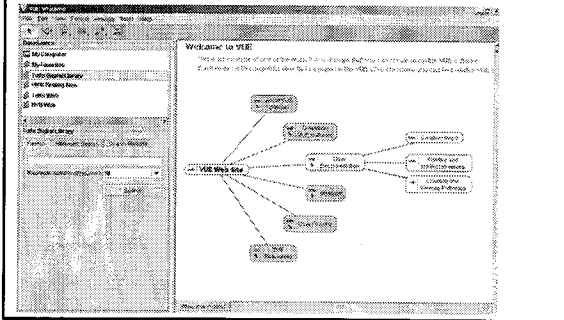# 3a. Animations, Video Clips, Audio, Pictures, Web Resources, etc.

3b. Exploration and Demonstration: Virtual Fieldtrip

3c. Virtual Tours and Timelines

3d. Current Events: Interactive Online New Stories & Cases
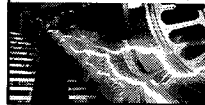
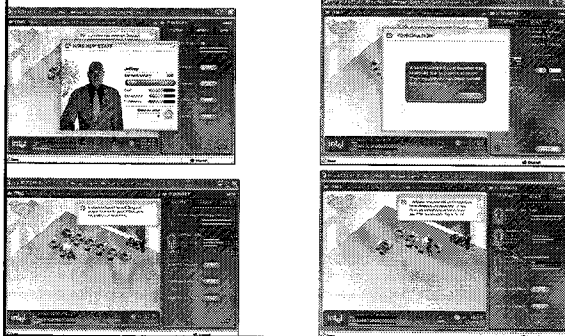## 3e. Visual Understanding Environment (VUE) project from Tufts
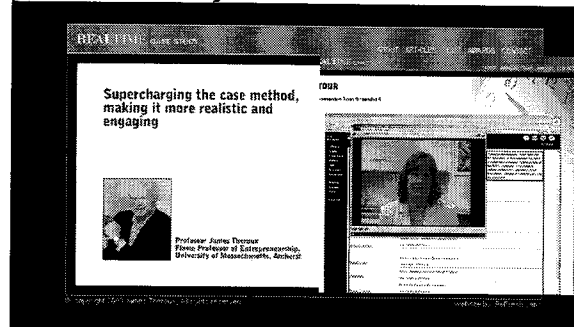

4. Tactile/Kinesthetic Learners

- 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. Educational Simulations, Scenarios, and Manipulations

4b. Real World Problems (PBL online): Real-time Cases

Supercharging the case method, making it more realistic and engaging

Professor James Theroux
Flavin Professor of Entrepreneurship, University of Massachusetts, Amherst

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

- Mobile/Hands-on
- Auditory,
- Thought-stimulating,
- Real-World,
- Interactive,
- eXtremely Visual learning

Questions and Answers...???