E-Learning: It's about Nature (technology) AND Nurture (pedagogy)

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http://php.indiana.edu/~cbonk
http://SurveyShare.com

Nature and Nurture: An Interactional Model

Technology

Pedagogy

People, Society, Culture, etc.

Poll #1. What are you???
A. Teacher, instructor, teacher assistant
B. Counselor, school psychologist
C. Curriculum specialist, developer
D. Instructional designer, technology specialist, multimedia developer
E. School administrator, principal, head
F. Government official, policy thinker
G. Student
H. Other

Poll #2:
Raise your hands if you are a digital native (grew up with a computer at home).

Poll #3:
What age learners are you interested in?

a. Ages 1-5
b. Ages 6-10
c. Ages 11-15
d. Ages 16-20
e. Ages 21+
Poll #4:  
What age learners is online education growing the most in KL?  
- a. Ages 1-5  
- b. Ages 6-10  
- c. Ages 11-15  
- d. Ages 16-20  
- e. Ages 21+

Poll #5:  
Should kids be allowed to bring mobile phones, MP3 players (iPods) to school?

E-learning + Scotland = Major success,  
May 21, 2006  
http://www.sundayherald.com/55719

In this vision of the future, every school will have a web portal where the pupils, parents and teaching staff will have the opportunity to interact and share information. In this virtual space, lessons will be beamed direct to anyone who wants to attend, while all the teaching materials required can be downloaded in a trice. Video conferencing will facilitate group interaction while scholars from Tokyo to Tomintoul (Scotland) will log on to their personalised home pages to upload course work, view their marks or receive news about the wider school community.

However...“SCHOOLS and colleges are not renewing their IT equipment fast enough to keep up with changing technology, according to the British Education Communications and Technology Agency (Becta).”

Brainstorm #1:  
What technologies hold the most promise in Malaysian schools today?

I’m a librarian
Technology of the 1980s

Radio Shack TRS-80 Model III

- Introduced: July 1982
- Price: US $289 base model
- US $2955 with 256KB, dual chows.
- CPU: Z80 2.00, 2.02 MHz
- RAM: 4K, 8KB max.
- Ports: SERIAL, parallel, serial
- Display: 12 inches with monitor 64 x 192 pixel
- Storage: 5.1 or 3 internal 1.75W floppy drives
- External cassette at 56K / 115200 baud
- OS: BASIC and TRS-DOS on disk

Entice Students with Technology Giveaways

Gateway M727 Tablet PC
- Winenese School District
- Cleveland State University
- University of Kentucky
- The initiative will provide the tablet computer as full-time students who do not have
  laptops from previous

The Growth of Online Learning

No Child Left Behind Summit: Learning and Students Today: Options for No Child Left Behind
Susan Patrick, Director, Office of Educational Technology, U.S. Department of Education

- Reasons: Rural, medical, disabilities, at risk, work, sport, poverty, AP, supplement, catch up, summer, etc.
- Types: Virtual charter schools, State run schools, District run, University run.

Peak Consulting, an educational consulting group, estimates:
- 1 million American high school students are currently taking Internet courses in 2004-05
- 571,000 in 2003
- 378,000 in 2002
- More students log on to learn, Boston.com, Peter Schworm, September 16, 2004.
Teacher Professional Development in Technology Integration (the TICKIT Program)
(Bonk, Ehrman, & Yamagata-Lynch, in press, AACE Journal)
http://www.iub.edu/~tikit

TICKIT: Teacher Institute for Curriculum Knowledge about Integration of Technology

Table 1: State Sponsored Virtual High School Enrollment Growth

<table>
<thead>
<tr>
<th>K-12 Virtual Initiative</th>
<th>Launch Year</th>
<th>Launch Year Enrollment</th>
<th>Enrollments in 2002/03</th>
<th>Avg. Annual Enrollment Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Virtual High</td>
<td>1997</td>
<td>77</td>
<td>10,000</td>
<td>165%</td>
</tr>
<tr>
<td>Illinois Virtual High School</td>
<td>2001</td>
<td>409</td>
<td>1,232</td>
<td>201%</td>
</tr>
<tr>
<td>West Virginia Virtual High School</td>
<td>2000</td>
<td>300</td>
<td>1,200</td>
<td>100%</td>
</tr>
<tr>
<td>E-School (Hawaii)</td>
<td>1997</td>
<td>96</td>
<td>500</td>
<td>39%</td>
</tr>
<tr>
<td>Michigan Virtual High School</td>
<td>2000</td>
<td>77</td>
<td>7,282</td>
<td>125%</td>
</tr>
</tbody>
</table>

Source: School data and Eduventures research, September 2003

Florida Virtual School (FLVS) is an established leader in developing and providing virtual K-12 education solutions to students throughout the country. A nationally recognized e-Learning model, FLVS was founded in 1997 was the country’s first state-wide Internet-based public high school. Today, FLVS serves middle and high school students with more than 80 courses.
Enrollments by Gender (2005-06)
Female 59%
Male 41%

Enrollments by Race (2005-06)
White Non-Hispanic 59%
Hispanic 13%
Asian 4%
Multi-Ethnic 4%
Other 3%

Virtual School Leaders Encourage Growth of K-12 Online Learning; Discuss High School Reform at Regional Summit (June 26, 2006)
http://www.prnewswire.com/education/20060626/RTM25126062006-1.html

- "We know firsthand that demand for virtual education is growing," said FLVS President & CEO Julie Young. "For the past five years, we have seen double-digit growth at FLVS."


Fond du Lac High, Wisconsin (March 10, 2006)

Open enrollment popularity grows

By Shara Berndt
The Reporter
sberndt@fond bourgeois.com

"It's great," said Dawn and Patty Pariani, whose three children now attend Fond du Lac High School, a charter public school in Fond du Lac. "It has given our family the ability to educate our children outside traditional school settings," Patty said.

Though Wisconsin's open enrollment period ends Feb. 28, the Parini's are among many parents looking to educate their children with alternative school options.

"We do it to school choice with choice," Patty said. "It's a great opportunity to teach our children and have a hands-on experience in the classroom."
50,000 Utah Students Earning High School Credits Online!  
(June 20, 2006)

Utah's online Electronic High School leads the nation in student enrollment

By Tiffany Enklar
Senior Money Writer

Since Utah passed the rule allowing students to earn high school credit through online classes, more than half of the state's high schools have offered online classes. Students are finding that the program is easier to catch up in classes, less expensive in some cases, and it can also provide more flexibility in terms of when they study. The program is the largest online teaching program in the country. Florida is a distant second with about 20,000 students last year.

A recent trend in online classes is the use of blended learning. In blended learning, students have a mix of online and in-person classes. The University of Miami is an example of this. It is a hands-on approach, where students are encouraged to participate and get involved. The course is designed to help students learn about business and finance.

Indiana Univ (8 campuses): Spring 2005
Students: 89,413 loaded; 78,549 logged in (88%)
Faculty: 7,014 loaded; 5,441 logged in (78%)
Courses: 22,419 loaded; 9,286 active (41%)

Growth in Student Enrollments at KD

Illinois Virtual Campus
Enrollment in online classes tops 80,000 for Fall 2004 semester

SUNY Learning Network (SLN)
Online course enrollments

http://www.ivc.illinois.edu/pubs/enrollment/Fall_04.html

http://sln.suny.edu/
The OUM
(Abtar Kaur, 2005, Ed Media)

- Started August 2001: approx. 800 students
- Total students (2005): approx. 33,000
- Total full-time academic staff: 60
- Total part-time academic staff (tutors): approx. 3,000
- 33 Learning Centres (7 Regional Centres)
- Pedagogical approach: Blended Learning

Of course, they are using computers too!

Open University of Israel
(overall enrollment growth)

<table>
<thead>
<tr>
<th>%</th>
<th>Studying in a course with website</th>
<th>Students</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1%</td>
<td>465</td>
<td>31,003</td>
<td>1998</td>
</tr>
<tr>
<td>19%</td>
<td>6,163</td>
<td>32,297</td>
<td>1999</td>
</tr>
<tr>
<td>61%</td>
<td>20,294</td>
<td>33,033</td>
<td>2000</td>
</tr>
<tr>
<td>73%</td>
<td>25,596</td>
<td>35,100</td>
<td>2001</td>
</tr>
<tr>
<td>85%</td>
<td>31,337</td>
<td>36,758</td>
<td>2002</td>
</tr>
<tr>
<td>96%</td>
<td>36,993</td>
<td>38,728</td>
<td>2003</td>
</tr>
<tr>
<td>99%</td>
<td>38,765</td>
<td>39,249</td>
<td>2004</td>
</tr>
<tr>
<td>99%</td>
<td>39,935</td>
<td>40,248</td>
<td>2005</td>
</tr>
</tbody>
</table>

The African Virtual University
(http://www.avu.org/default.asp)

Who is demanding online learning?

A Different Generation?? Multitasking...
"YOUNG AND WIRED," Katherine Seligman, San Fran Chronicle, Sunday, May 14, 2006

Gloria Kwan listens to her iPod while text messaging a friend who's in class.
Chronicle photo by Mike Kepka
"YOUNG AND WIRED. Computers, cell phones, video games, blogs, text messages — how will the sheer amount of time spent plugged in affect our kids?"
Katherine Seligman, San Fran Chronicle, Sunday, May 14, 2006

Harker student Stephanie Lii (wearing a fake nametag), during language class, recording her voice in Spanish for the teacher to evaluate later. Chronicle photo by Mike Kepka

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

"Learning that takes place in the classroom isn't as important as time studying on your own."
—Druban, Moskal, & Hartman (2007)

Tech creates a bubble for kids

Alejandro Gonzalez, USA TODAY, Updated 6/20/2006 10:34 AM ET

Differences between Boomers and Gen Xers

Generations: Dealing with Boomers, Gen-X, and Beyond
K. Boyce Appel, April 1, 2005, Practice Management Digest

<table>
<thead>
<tr>
<th>Generational Group</th>
<th>Born</th>
<th>Age</th>
<th>Stereotype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silent Generation</td>
<td>1925-1942</td>
<td>61-78</td>
<td>Adoptive</td>
</tr>
<tr>
<td>Baby Boomers</td>
<td>1943-1960</td>
<td>43-60</td>
<td>Idealists</td>
</tr>
<tr>
<td>Thirteen (Gen. X)</td>
<td>1961-1981</td>
<td>22-42</td>
<td>Realists</td>
</tr>
<tr>
<td>Millennial (Gen. Y)</td>
<td>1982-?</td>
<td>13-21</td>
<td>Civic</td>
</tr>
</tbody>
</table>

Gen Y Learners???
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

Generation Raised on the Internet Comes of Age, MSNBC, Dec., 13, 2004, Martha Irvine
- For 21-year-old William Herbert, the Internet has replaced newspapers and TV weather reports (he visits Weather.com every morning). He pays his bills online, registers for classes, books airline and train tickets, checks TV listings, buys movie tickets and gets travel directions.

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.
- Older people prefer less interaction than younger people in distance education (Kearsley, 1995).

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.

Online PowerPoint?
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

- "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: 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.
  - "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, Edusource, 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
Neomillenial Learning Styles
Planning for Neomillenial Learning Styles: Implications for Investments in Technology and Faculty
Chris Duve, Harvard University

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

How P2P Will Change Collaborative Learning
By Judith V. Boettcher
Campus Technology, June 2006

"Teams of five to 10 people are loaned laptop computers, digital camcorders, and technical support for a week, to produce a five-minute film. Films receive awards in four categories: Best Comedy, Best Drama, Best Documentary, and Best Picture. The CMF Web site stores much of the student work online, and sells DVDs of the movies from each school."

How P2P Will Change Collaborative Learning
By Judith V. Boettcher
Campus Technology, June 2006

- The CMF project is the type of learning experience that builds hands-on skills and teamwork, and really gets students' juices going—or in the jargon of instructional design, "involves active, engaged learning experiences." It hearkens back to the days of guilds and the apprentice model: immersion experiences integrating learning with experts and hands-on production. In the process of creating a movie, students share and build their knowledge about planning, designing, and editing films.

How P2P Will Change Collaborative Learning
By Judith V. Boettcher
Campus Technology, June 2006

(Prepackaged, Guided, or Spontaneous?)

"As learning experiences shift from a focus on reading prepackaged content to more active learning where students explore, research, problem solve, and create, the P2P capabilities of file sharing and collaboration become ingrained in the learning process. Teenagers use these types of technologies naturally and almost automatically."

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.
A review of research on the design of multimedia explanations:
(a) 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,
(b) 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,
(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.

Nature and Nurture: An Interactional Model (20 tech trends)

Many Emerging Learning Technologies
1. Assistive Technologies & Talking Computers
2. Blogs and Online Diaries
3. Digital Portfolios
4. Electronic Books
5. Online Communities and Learning Portals
6. Intelligent Agents
7. Online Exams and Homework
8. Online Games and Simulations (Massive Multiplayer Gaming)
9. Online Translation Tools & Language Lng
10. Course Management Systems
11. Peer-to-Peer Collaboration
12. Reusable Content Objects
13. Videostreaming, IP Videoteleconferencing
14. Virtual Worlds/Reality
15. Wearable Computing
16. Wireless Tech: Tablet PCs, Handheld Devices

Part I. 20 Technology Trends

1. Online Maps and Videos (Sergey Brin, Co-Founder)
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

- The Google Planimeter measures areas. Click on three points on a map, and the Planimeter connects them in a triangle and computes the area. Click on additional points and the triangle expands into a many-sided polygon; the program recomputes the area. Suggested activities: Have students estimate the area of a geographical region; plot many points to obtain increasingly accurate estimates. For example, a lake in New York state is first bounded by using 3 points, then by 19 for increased accuracy.

- With YourGMap you can identify your own choice of locations, add comments, create a map of them, and make it available on the Internet. Suggested activities: For elementary school students, create a tour of the neighborhood. Identify the school, grocery store, firehouse, park, and so on. You can even use the Google maps satellite view to see the actual buildings.

2. Clickers: Innovation is but one click away...

Trend #3. Online Tutoring and Mentoring
(Simon Fraser University News:
Trend #4: Wireless Technology

- Handheld Computing

Trend #5: Mobile Technology

- Next hot trend for cell phones: Reading?

Trend #6: Learning Object Portals

- MERLOT.org

Trend #7: Blogging

Trend #8: Wikis and Electronic Books

Trend #9: Podcasting and Coursecasting

EPN...
WorldBridges History (short)

Trend #10: Virtual Worlds/Virtual Reality/MMOG

Ancient Rome Virtually

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

U.N. Food Force, called the first humanitarian game, simulates problems of getting supplies to wartime refugees.

Trend #11: Synchronous Conferencing

Trend #12. Computer Grading

Trend #13. Collaborative Tools
YAHOO GROUPS

Trend #14. Online Voice and Text

Trend #15. Free Online Resources
(e.g., Museum of Online Museums)

Trend #16. Open CourseWare and Open Source Software

Trend #17. Social Networking Web 2.0
(the read/write web)

Trend #18. Online Exams and Homework
USA Today 11/25/03
### Tablet PC in K-12 Schools

Teacher Dorothy Swain uses a tablet connected to an electronic blackboard in one of her classes at Winterboro School. With this technology, teachers can write on the board from anywhere in the classroom. (Bob Crisp, The Daily Home (Alabama), April 9, 2006)

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### Trend #20.
**Videostreaming and Videoconferencing Lectures**

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### Let's Think Outside the Box!

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### Brainstorm #2:
Which of these technologies will make an impact in Malaysia?

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### End of Part I!!!