Frameworks for Blended Learning at the Edges of Technology-Enhanced Training: R2D2, TEC-VARIETY, and Extreme Learning

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

Reflection Back 10 Years

2001: A Space Odyssey

Blended Learning in the Army

Virtual Tactical Operations Center (VTOC)

Collaborative Online Writing: Peer-to-Peer Document Collaboration

Document Sharing in the VTOC
Maps in the VTOC

Ten Years Later...

2011

thisISmyhappyface

Dog Gets MBA,

Many in the Army are Smiling!
Soldiers gain education and promotion points through Skillsoft
January 23, 2011
As the Web Goes Mobile, Colleges Fail to Keep Up, Chronicle of Higher Ed, Josh Keller

"I used it to sign up for classes, I used it to check emails," says Laura Patterson, a junior at Nevada State College, about her iPhone. "I used it all the time, for everything." More than 40 percent of all college students, like Nevada State's Laura Patterson, used mobile devices to go on the Internet every day last year, compared with 10 percent in 2008.

February 17, 2011
US internet access still a problem: Gov't says up to 10 pct in US lack good Internet, Joelie Tesslar, AP Technology Writer

February 27, 2011
Actually Going to Class, for a Specific Course? How 20th-Century, Now learning technologies prompt a rethinking of traditional course structure, Chronicle of HE, Jeffrey R. Young

10 Blended Models

Blended Model #1. Face-to-Face Primary
(online is for remediation of supplement)

Blended Model #2. Rotation
(students alternate FTF and Online instruction)
Blended Model #3. Flex
(curriculum primarily online with instructors available FTF)

Blended Model #4. Online Lab
(lab or field experience component of course is online)

Blended Model #5. Self-Blend
(students decide on which courses they take online or which portion of the course is online)

Blended Model #6. Online Driver
(courses primarily online and physical facilities used to supplement or as needed)

Blended Model #7. Bookend
(first and last part of the course is online and middle portion is online; AMA Special Report, Blended Learning Opportunities
Alison Rossett (2006))

Blended Model #8. Anchor
(start with FTF or what students are familiar with and then move to online)
Blended Model #9. Field
(combine FTF and online as needed...mix and match)

<table>
<thead>
<tr>
<th>Field Based</th>
<th>Online Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Interactive Classroom</td>
<td>Live Interactive Classroom</td>
</tr>
<tr>
<td>Discussions</td>
<td>Discussions</td>
</tr>
<tr>
<td>Collaborative projects</td>
<td>Collaborative projects</td>
</tr>
<tr>
<td>Web-based problems</td>
<td>Web-based problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field Based</th>
<th>Online Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive learning</td>
<td>Interactive learning</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Problem solving</td>
</tr>
<tr>
<td>Online assessments</td>
<td>Online assessments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field Based</th>
<th>Online Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced learning opportunities</td>
<td>Enhanced learning opportunities</td>
</tr>
<tr>
<td>Improved communication</td>
<td>Improved communication</td>
</tr>
<tr>
<td>Increased accessibility</td>
<td>Increased accessibility</td>
</tr>
</tbody>
</table>

99 Second Break for questions or reflections on models...
1. Inexpensive Laptops and Netbooks

2. Online Language Learning
   January 27, 2010 and Feb 5, 2010: The Web Way to Learn a Language, NY Times, ERIC A. TAUB (e.g., EnglishCentral, iTalki, Polabahia, Babbel)

3. Tablet Computers Hit (iPad)
   April 10, 2010: Seton Hill Univ. 2,100 students an iPad and freshmen a 13-inch MacBook laptop
   Feb 1, 2011: An Android Tablet Made Just for School, David Zax, Fast Company
   Samsung: Galaxy Tab has log up on Apple iPad, by Stephen Shankland, CNET, September 3, 2010
   Apple unveils new iPad computer for students

4. Mobile (e.g., iPad) News
   August 10, 2010: Flipboard pretties up social-media updates Facebook statuses and tweets read into magazine-like format in free app for iPad; Jefferson Graham, USA TODAY
   February 1, 2011: A peak at The Daily's iPad news app ($40/year); CNN Tech, Mark Millan

5. Pocket Dictionaries
   September 9, 2010: Campus Tech in China: Impressions From 3 Campuses, Jeff Young
   I didn't see any laptops in use here, though the three Korean exchange students that with proudly produced their favorite educational gadget: portable electronic dictionaries that can look up words in Chinese, Korean, English, and Japanese. Language learning has the best use of technology here, according to some professors I've talked to this week, and electronic glossary what seems like hundreds of varieties of digital dictionaries.
6. Digital Textbook Projects (Korea).
Sept. 21, 2010: What South Korean Schoolchildren Can Teach Colleges About E-Textbooks; By Jeff Young, Chronicle of HE. Korea E-Learning Week, Coex, Seoul, Sept. 16-17, 2010

7. Mobile Music
December 10, 2010: Virtual Bands, Choirs, Singers, etc. iBand Rocks Tunes on iPads and iPhones; Paddogg.et.

8. Video Calling/Conferencing/Webcaming
December 20, 2010: Skype for iPhone adds two-way video calling, CNet Reviews

9. Social Networking Gaming
December 24, 2010: CityVille 16.8 million daily users. FarmVille 16.4 million. CityVille 61.7 million monthly users. FarmVille 66.8 million users. Washable.

10. E-Book Readers
January 28, 2011: Amazon: Kindle Books Finally Eclipse Paperback, Doug Aamoth

Whether a surge in e-book sales can be sustained and what effect it could have on traditional bookstores remains to be seen.

March 2, 2011: Why Amazon would be smart to give away the Kindle, March 4, 2011, CNN Tech, Amy Garcia
whyamazonwouldbesmarttogiveawaythekindle
12. New Interfaces
February 18, 2011: Telekinesis 2.0, David Zax, Fast Company

13. Artificially Intelligent Computers
February 18, 2011: IBM Watson dominates at Jeopardy! — but what else can it do? As IBM seeks new uses, man still has edge over machine, Dan Pergamo, USA Today.


16. Mobile Expert Tutors, April 7, 2011: Tutor.com Releases First Ed App that Connects Students to an Expert Tutor

---

Nature AND Nurture: Pedagogy
Nature (Technology) 
Nurture (Pedagogy)
People, Society, Culture, etc.
1. Risk  
   - Low Risk  
   - High Risk  

2. Time  
   - Easy to Embed  
   - Extensive Planning  

3. Cost  
   - Free or Inexpensive  
   - Enterprise Licenses  

4. Student-Centered  
   - Instructor-Focus  
   - High  

---

**The R2D2 Method**

1. Read (Auditory and Verbal Learners)
2. Reflect (Reflective Learners)
3. Display (Visual Learners)
4. Do (Tactile, Kinesthetic, Exploratory Learners)

---

**Poll: Podcast Questions**

a. Who has listened to a podcast?
b. Who listens to a certain podcast on a regular basis?
c. Who has created a podcast?
d. Who has created a vodcast?
e. Who thinks podcasting is simply more talking heads?
Read 1a. Listen to Podcast Shows

Read 1b. Online Article Portals and Databases
- [Databases](http://libguides.indiana.edu/military)
- [MILITARY PORTAL](http://libguides.indiana.edu/military)
- [Military History Podcast](http://libguides.indiana.edu/military)

Read 1c. Wikibook or Wikipedia Editing or Critiques
- Ask students to critique a wikibook or page from Wikipedia

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

Blogging Questions
1. Who has a blog?
2. Who regularly reads other people's blogs?
3. Who assigns blogging tasks?
4. Who has created a video blog?
5. Who thinks it is an utter waste of time to blog?

Reflect 2a. Blogging Reflections
Reflect 2b. Critical Friend Blog Postings (Kristen and Susan)

Reflect 2c. Scenario Learning (Option 6, Bloomington, IN)

Reflect 2d. Workplace and Field Reflections...MM

Reflect 2e. Free OpenCourseWare of Open Educational Resources (e.g., watch or listen to Online Courses or Programs on Disaster Preparedness and other areas)

Reflect 2f. Videos on Book Websites (e.g., Brain Rules, John Medina)
3. Visual Learners

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

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

Display 3b. Visual presentations (e.g., Prezi)
http://prezi.com/third/3dworld-to-the-world-open/
http://prezi.com/3dworld-is-open/

Display 3c. World Trends and Indices (e.g., Worldmapper)

Display 3d. Download and Use Online 3D Sketches (Google SketchUp; download http://sketchup.google.com/3dwarehouse)

Display 3e. Videos for clinical education (Sungkyunkwan University School of Medicine, www.mededu.or.kr)
4. Tactile/Kinesthetic Learners
- Tactile/kinesthetic senses can be engaged in the learning process by role play, dramatization, cooperative games, simulations, creative movement and dance, multi-sensory activities, manipulatives and hands-on projects.
Do 4d. Uploading Mobile Books (e.g., BookRix, http://www.bookrix.com/)

Do 4e. Virtual Microscopes (Sungkyunkwan University School of Medicine, www.med.edu.or.kr)

Do 4f. Virtual Quizzes (www.med.edu.or.kr)

Do 4g. Create Blogs (e.g., Dr. Kim Foreman, San Fran State University, Come and See Africa Blog; http://comeandseeafrica.blogspot.com)

Poll #1: How many ideas did you get from this part of the talk?

a. None—you are an idiot.
b. 1 (and it is a lonely #).
c. 2 (it can be as bad as one).
d. 3-5

e. 6-10

f. Higher than I can count!

99 Seconds Stop and Share: Top Three Things you can use!
We are not motivating students with the technologies that they love!

Intrinsic Motivation

"...innate propensity to engage one's interests and exercise one's capabilities, and, in doing so, to seek out and master optimal challenges (i.e., it emerges from needs, inner strivings, and personal curiosity for growth).


Motivation Research Highlights (Jere Brophy, Michigan State University)

1. Supportive, appropriate challenge, meaningful, moderation/optimal.
2. Teach goal setting and self-reinforcement.
4. Novelty, variety, choice, adaptable to interests.
5. Game-like, fun, fantasy, curiosity, suspense, active.
6. Higher levels, divergence, dissonance, peer interaction.
7. Allow to create finished products.
8. Provide immediate feedback, advance organizers.
9. Show intensity, enthusiasm, interest, minimize anxiety.
10. Make content personal, concrete, familiar.

I even reflected on this for a moment...and then something magical happened...

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

May 9, 2011, USA Today

Troops' morale in field plunges

Stressed-out

McChanges

One Billion Dollars

Stressed-out
Magic #1: 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

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

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

3. Curiosity:
   B. Online Games

1. Tone/Climate: A Video Course Intros
   (examples from Northern Virginia Community College and Indiana University XD online MBA program)
   http://www.youtube.com/watch?v=809Ifg101Jo
4. Variety, Novelty:
A. Cool Resource Provider or Tech Demos

5. Autonomy, Choice:
A. Online Cases (e.g., Mark Braun, IU)

6. Relevance, Meaningfulness:
A. Tour an Online Oil Drilling Site or Role Play Situations (i.e., BP)

https://www.youtube.com/watch?v=t5k50l3aqT8

6. Relevance, Meaningfulness:
B. Business Wikis

---

**Quote from 7 Effective Wiki Uses and the Companies that Benefit from Them**

- SAP: On the [SAP Developer Network Wiki](https://wikis.sap.com), the "main criteria for choosing to put content in the wild is its volatility and dynamics, extendability and/or collaborative character. Ask yourself the question, if you want others to be able to change, extend, regroup, add, etc. your contribution. That's an excellent question to ask, especially for content that's going on a public wiki.

---

6. Relevance, Meaningfulness:
C. Internal Wikis for Knowledge Management (e.g., Infelpedia)

Per Josh Bancroft, Intel engineer and the creator of Infelpedia at Intel:
"Imagine that you could have all the features and functionality that Wikipedia has on your own internal wiki."

"In the four-plus years that Infelpedia has been up and running, I have had exactly zero reported instances of an unwanted edit — of some-one spamming or vandalizing or doing something inappropriate." — JD Lesie, July 8, 2010 interview with Josh, http://www.socialmedia.biz/tesa/infelpedia/
7. Interactive, Collaborative:
   A. Collaborative Documents (Google Docs)

8. Engagement, Effort:
   A. Flash, 3-D Visualization, & Laboratory Software

8. Engagement, Effort:
   B. Cross-Institutional Wikibook Project
      (e.g., IU and the University of Houston)

9. Tension, Challenge, etc.:
   A. Ethical Debates

10. Yields Products, Goals:
    A. Photo Festivals and Competitions
        (e.g., COFA at UNSW, Scrapblog, flickr, etc.)

10. Yields Products, Goals:
    B. Create Own Channel in YouTube
        (e.g., my channel "TravelinEdMan")
        [Link to YouTube channel]
10. Yields Products, Goals: C. Employee Film Competitions (Deloitte Film Festival)

Poll #2: 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.

99 seconds: What have you learned so far?
• Solid and Fuzzy in groups of two to four

Do you feel JUMBO MOTIVATION?

Note: Bonk papers and talks at:
http://www.publicationshare.com/
http://www.trainingshare.com/

TEC-VARIETY Model for Online Motivation and Retention
- Tone/Climate
- Encouragement, Feedback
- Curiosity
- Variety
- Autonomy
- Relevance
- Interactive
- Engagement
- Tension
- Yields Products

Tinkering, Tottering, or Totally Extreme?
Tinkering

Tinker #1. Reading from Open Access Journals (e.g., PLOS)

Tinker #2. Webcast Lectures
(Tegrity, Echo360, Mediasite, etc.)

Tinker #3. Timeline Tools
(e.g., SIMILE from MIT (http://simile.mit.edu/),
Learning Tools from UBC)

Arlington Racetrack

Jockey’s are Important
Tinker #4. Online Literature Search (Class Google Jockeys) (links to text, soundtracks, video clips, etc.)

Tinker #5. Video Animations and Self-Testings

Tinker #6. Anchored Instruction with Shared Online Video

Tinker #7. Pubcasts. (videos of authors of scientific papers and science; e.g., Scivew)

Tinker #8. Collaborative Groups (Google Docs, Ning, Google Groups, MSN Groups, Yahoo Groups)

Tinker #9. Track Life of a Scientist or Famous People (e.g., Brian J Ford, independent scientist)

https://www.youtube.com/watch?v=q1QdmrN6u1w

Watch as the BBC Talk about the experiments: What are these black holes and what are scientists trying to learn about them?
Tinker #10. Online Portals of Rich Data
United Nations Opens World Digital Library, Turning the Pages from the British Library, etc. (History, culture, literature, writing, art, etc.)

Tinker #11. Online Experiments (e.g., psychology)

Tinker #12. Educational Simulations

Tinker #13. Online Role Play (e.g., Tulane University, Exercise for Renewable Energy, Freeman Sch. of Business, roles include power traders and utility dispatchers, etc.)

Tinker #14. Podcast Reflections

Tinker #15. Expert and Domain Specific Blog Reflections (English, Health, Business, etc. blogs)
Tinkering

Tottering

Totter #1. Bridges to World of Expert and Practitioners
(e.g., Watch or Listen to Online Conferences, Expert interviews, blogs, chats, etc.)

Totter #2. Famous Expert Via TED
(shared online video), Fast Company, Anya Kamenetz, September 1, 2010

Totter #3. Real World Problems (PBL online): Real-time Cases

Totter #4. Class Synchronous Sessions and Archives (Breeze/Adobe Connect, Pro, Elluminate, WebEx, Dim Dim)
**Totter #5. Global Class Videoconferencing**

**Totter #6. Videoconferencing in Remote Lands**
(e.g., The seminar was structured as a series of videoconferences and video halls on a daily basis, organized by the Ministry of Health and Prevention of Canada. The sessions were held in the specific fields for the populations of the villages in the province of Tibet.)

**Totter #7. Combining Asynchronous and Synchronous Events**

**Totter #7b. Asynchronous and Synchronous Events**
(e.g., William and Mary, March 3, 2011)

**Totter #8. Online Language Learning and Conversations**
(e.g., Paltalk, Italki, Palabra, Babbel)

**Totter #9. Course Announcements**
(e.g., Teaching with Twitter; Course announcements and following people (e.g., microblogging))

follow us on twitter 🐦
Totter #10. Wikibooks, Wikipedia editing, wiki syllabi, wiki glossaries
(Ron Owston, York University, Toronto)

Totter #11. Student YouTube Products
http://www.youtube.com/watch?v=n3L3vafzQ
http://www.youtube.com/watch?v=nD7JyW4FRk_E
http://www.youtube.com/watch?v=O1h3jOdCoP0

Totter #12. Podcast Productions and Virtual Performances for students of pronunciation class
(e.g., Tzu-Su Chen, Taiwan)

Totter #13. Video Blogging

Totter #14. YouTube as Class

Totter #15. Collect Student Data for Shared Online Videos (e.g., Michael Wesch, Kansas State)
Totally Extreme Learning

Totally Extreme #1. Live Science
(Nautilus Live allows people to watch expeditions live & listen to scientists in control rooms as discoveries made)

Totally Extreme #2. Immediate Science
Ida (a transitional species) 47-Million-Year-Old Fossil the Missing Link? (May 20, 2009)

Totally Extreme #3. Armchair Archeology
UCLA Summer Digs Program

Totally Extreme #4. Google Earth Archeology
(David Thomas, Archeologist, La Trobe University, Australia)

Totally Extreme #5. Adventure Learning, GeoThentic, Earthducation, Polar Husky, GoNorth (Aaron Doering, Univ of Minnesota), Impossible to Possible, Ray Zahab
What lies beyond effectiveness and efficiency? Adventure learning design (Doering & Veletsianos, 2008)

Totally Extreme #6. Learning on the Sea. (May 2010, Jessica Watson became the youngest person ever to sail solo, non-stop and unassisted around the world.)


Totally Extreme #8. Adventure Learning (cars and bikes) Dan Grec and Mark Beaumont


Totally Extreme #10. On-Demand Multi-Participant Synchronous Conferencing
Poll #3: Is your brain mush?

1. Yes.
2. No.
3. Not sure yet...

Glowing light bulb, 2010
It is both Nature AND Nurture as well as PEOPLE!!! Technology is just part of the Equation

Technology  Pedagogy

People, Society, Culture, etc.

Any Extreme Questions and Comments?
Slides at: TrainingShare.com
Papers: PublicationShare.com
Book: http://worldisopen.com/
Email: curt@worldisopen.com