“Brain Expander”
Ultra-Engaging Online and Blended Learning: Introducing the TEC-VARIETY and R2D2 Models
Curtis J. Bonk, IST Professor
Indiana University
cjbonk@indiana.edu; http://curtbonk.com/

Poll #1: Ok, Who’s thirsty?

At Starbucks:
Online Learning is a Perk!

Starbucks Coffee Korea employees learn how to use the firm’s online learning system “Starbucks Academy,” which was introduced, Wednesday. The two-way learning system provides some 5,000 employees in Korea with various reeducation services, including encyclopedias, latest news and information about coffee among others. Starbucks Korea is the first affiliate of the international coffeehouse selling its products in 60 countries to introduce the system.

Poll #2: Now who’s thirsty?

Universities tap growth of craft beer, offer classes, Chicago Tribune

Top Program at Oregon State is a blended learning program in beermaking!


January 16, 2019
Survey: Online, Blended Dominate Today’s Learning Environments
Rhea Kelly, Campus Technology
Campus Technology’s 2018 Teaching with Technology Survey
January 16, 2019
Survey: Online, Blended Dominate Today’s Learning Environments
Rhea Kelly, Campus Technology

Campus Technology’s 2018 Teaching with Technology Survey

[Image]

A Dozen Examples of Blended Learning

March 25, 2019
Blended Solution #1.
Use the Media to Supplement Content
Engineering Technology

http://engineertech.org/

May 13, 2019
Blended Solution #2.
Something in the News
Carbon Dioxide Levels in the Atmosphere Hit Highest Mark in Human History
Nina Golkowski, The Huffington Post

https://www.huffpost.com/entry/co2-levels-hit-new-high_n_5cd9882ae4b0c388e584eb09

Blended Solution #3.
Virtual Labs and Sensors
Conduct physical model simulations of soil and soil-structure systems subjected to an earthquake.

https://virtuallyinspired.org/portfolio/online-engineering-lab-with-high-end-equipment/

March 8, 2019
Blended Solution #4.
Analyzing Online Raw Data
(e.g., Editing computer code; 12 Best Code Editors for Mac and Windows for Editing WordPress Files)

https://www.wpbegginer.com/showcase/12-best-code-editors-for-mac-and-windows-for-editing-wordpress-files/
Blended Solution #5.
Reading from Open Access Journals (e.g., DOAJ—Directory of Open Access Journals)
https://doaj.org/
https://www.electrical4u.com/

Blended Solution #6.
Online Role Play or Debate (e.g., documentary production)

Blended Solution #7.
Streaming Live Events
Open Data Science Conference (ODSC)
Women in Data Science, Stanford University
https://www.widsconference.org/speakers-966253.html

Blended Solution #8.
Online Practice Tests and Interactive Flash Cards (e.g., Physics)
http://quizlet.com/
https://www.electrical4u.com/electrical-engineering-objective-questions-mcq/

Blended Solution #9.
Flipping the Classroom
Steve Skerlos, Professor in Mechanical Engineering at the University of Michigan, highlights the “flipped classroom” model to engage students during class through active participation.

Blended Solution #10.
Online Videos with Test Questions (e.g., TEDEd)
(Lessons about every single element on the periodic table)
https://www.ted.com/talks/
**Blended Solution #11.**
Video Tutorials, Demonstrations, and How-To’s (videos, tutorials, etc.)
(Jing, GoView, Screenr, Overstream, Screencast-o-Matic)

**Blended Solution #12.**
Combining Media (Dual Coding Theory: Wikipedia + Video + Pictures)

**Model #1: Best Practices for Online and Blended learning: Introducing the TEC-VARIETY Model**

**Needed: New Models of Motivation and Engagement**

**Poll #3: What did Jean-Luc Picard say?**

**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.
Examples of TEC-VARIETY

1. Risk
   - Low Risk
   - High Risk

2. Time
   - Easy to Embed
   - Extensive Planning

3. Cost
   - Free or Inexpensive
   - Enterprise Licenses

4. Student-Centered
   - Low Risk
   - High Risk

Student-Focus

April 3, 2017
1. Tone/Climate:
   A. Sli.do
   [https://www.sli.do/](https://www.sli.do/)

June 18, 2018
1. Tone/Climate:
   A. Sli.do
   [https://www.sli.do/](https://www.sli.do/)

2. Encouragement, Feedback:
   A. Blog and Website Polling
   (e.g., Poll Everywhere, BlogPolls, BlogPoll, MicroPoll)
   [http://www.poll everywhere.com/](http://www.poll.everywhere.com/)
2. Encouragement, Feedback:  
B. Voice/Audio Feedback  
Vocaroo: http://vocaroo.com/

3. Curiosity, Intrigue, Unknowns:  
A. Multimedia News  
(e.g., This may be the oldest surviving Photo of a human, November 7, 2014, CNN, Brandon Griggs; But this image, taken in Paris, France, in 1838)  

April 17, 2017  
3. Curiosity, Intrigue, Unknowns:  
B. 1st woman to officially run Boston Marathon does it again, 50 years later  
Emanuella Grinberg, CNN, USA Today  

September 27, 2018  
3. Curiosity, Intrigue, Unknowns:  
C. Immediate Science  
New 26,000-pound dinosaur discovery was Earth’s largest land animal, Ashley Strickland, CNN  

4. Variety, Novelty, Fun, Fantasy:  
A. Random Lists  
(Random.org—clocks, coins, playing cards, dice, integers, passwords, jazz scales, lists, sequences, etc.)

4. Variety, Novelty, Fun, Fantasy:  
B. Online Test/Quiz Review Games  
(e.g., Jeopardy Rocks)  
https://www.jeopardy.rocks/r511merve/)
4. Variety, Novelty, Fun, Fantasy:

C. Kahoot!
https://getkahoot.com/
July 31, 2017
I’m in ‘Kahoots’ with Technology in the Classroom
Cassandra OSullivan Sachar, Faculty Focus

4. Variety, Novelty, Fun, Fantasy:

D. Design or Play Games
Mash Up and Republish Like It’s 1923
Greg Toppo, Inside Higher Ed

October 10, 2018
4. Variety, Novelty, Fun, Fantasy:

E. FutureMe.org
Write a letter to the future
https://www.futureme.org/

February 21, 2017
4. Variety, Novelty, Fun, Fantasy:

F. My classroom is like a,”
http://wheeldecide.com/index.php?c1=Jungle&c2=Hospital&c3=Warzone&c4=Temple&c5=Garden&t=My+classroom+is+like+a&time=5
http://wheeldecide.com/

January 14, 2019
5. Autonomy, Choice:

A. Enroll in a MOOC and Reflect
(e.g., see Class Central)

B. Tracking the Life of a Computer Scientist
(e.g., bio.com)

Karl Brown, Assistant Professor of History
http://www.uww.edu/ce/beer-matters http://www.gazettextra.com/20150921/uw_whitewater_teacher_explores_links_between_germans_beer_politics
Video: http://curtbonk.com/beer.html (1:11)

January 24, 2019
5. Autonomy, Choice:

B. Tracking the Life of a Computer Scientist
(e.g., bio.com)

http://www.biography.com/people/ada-lovelace-20825323
http://www.biography.com/people/steve-jobs-9354805
Poll #4: Any light bulbs going off in your head so far...?
A. Yes definitely***
B. Yes maybe!
C. Not yet (but hopefully soon...)

Poll #5: Which of these ideas might you use?
A. Threaded video discussions (e.g., Flipgrid)
B. Enroll in a MOOC
C. Demonstrations and tutorials (Jing, Screenr, etc.)
D. Voice/Audio feedback (Vocaroo)
E. Designing multimedia glossaries
F. Something in the News
G. Summary and Comparison Maps
H. Immediate Science

6. Relevance, Meaningfulness:
B. Case-Based Learning: Instructor Cases (e.g., Mark Braun, IU)

Jan. 20, Oct. 13, & Nov. 2016 (Zoom)
6. Relevance, Meaningfulness:
A. Weekly Guest Expert Chats
RS11 Chat with Mike Molenda, IU

March 20, 2018
6. Relevance, Meaningfulness:
C. Editing Wikipedia Pages
Women’s Studies Students Across the Nation Are Editing Wikipedia
Emma Kerr, The Chronicle of Higher Education

Samantha Erickson, left, of the Wiki Education Foundation; Tina Brock, a dean of the School of Pharmacy at UC San Francisco; and professor Amin Azzam discuss implementing the integration of Wikipedia pages on medical topics with students' work
7. Interactive, Collaborative: A. Negotiate Meanings Online (e.g., PiratePad: http://meetingwords.com/)
  MeetingWords, Google Docs, NowComment, MixedInk

7. Interactive, Collaborative: B. Virtual Sharing Walls
e.g., Padlet (What is your secret recipe to engage?)
  http://padlet.com/zaid_alsagoff/engage

7. Interactive, Collaborative: C. Guest Speaker Quotes
  (Rey Junco, February 25, 2013)

7. Interactive, Collaborative: D. Civil Engineering Virtual Lab Collaboration
  The decision to use the centrifuge as a virtual laboratory brings the opportunity for remote collaboration and major experimentation into geotechnical engineering classes. A partnership between RPI, Southern Methodist University (SMU), based in Dallas, TX, and the University of North Carolina (UNC) of Charlotte enables students to conduct experiments, access, interpret, evaluate, and exchange relevant technical information.

7. Interactive, Collaborative: E. Explore Simulations in Virtually Inspired

7. Interactive, Collaborative: F. Cross-Institutional and Cross-Cultural Projects
  Learning From Others Across the World Through Video Exchange
  Melanie Hering, New Learning Times

  Four Steps to Create Cross-Cultural Collaboration in Online Classes
  Sara Hardman, New Learning Times
  https://newlearningtimes.com/cms/article/6119/four-steps-to-create-cross-cultural-collaboration

March 27 and April 12, 2019
July 17, 2017
8. Engagement, Involvement:
A. Learning Chemistry in Virtual Reality,
Sarah Hardman, New Learning Times
1:38 video: https://vialogues.com/vialogues/play/38337/all
http://curtbonk.com/chemistry-vr.html
01.41: http://curtbonk.com/chemistry-vr-1.html
01.57: http://curtbonk.com/chemistry-vr-2.html

February 14, 2018
8. Engagement, Involvement:
C. Maps (This map shows where more Americans are willing to support free speech, The Monkey Cage, The Washington Post)

March 30, 2017
8. Engagement, Involvement:
D. Interactive Timelines
(Dipity, xtimeline, Simile, TimeLineCurator, etc.)
Amy Cavender, The Chronicle of Higher Education

July 28, 2017
9. Tension, Challenge, Controversy, etc.:
A. Scenario-Based Learning and Challenges
Modern medicine breathes new life into virtual training
Videos
01.21: http://curtbonk.com/vr-medicine.html
01.37: http://curtbonk.com/vr-medicine2.html
01.57: http://curtbonk.com/vr-medicine3.html
1:30: http://curtbonk.com/vr-medicine4.html

December 13, 2016
9. Tension, Challenge, Controversy, etc.:
B. Controversial Issue Debates
Librarians for Instructional Technology, Latrice Booker, RS11, Fall 2016
http://bookerlr2000.wixsite.com/librariansfortit/cognitivism
9. Tension, Challenge, Controversy, etc.:
C. Yes, Mr. President, We Remade Our Atlas to Reflect Shrinking Ice
Christine Dell’Amore, National Geographic, August 3, 2015

10. Yields Products, Goals:
A. Facebook Course Page (R546)
https://www.facebook.com/JennyBELTT/

10. Yields Products, Goals:
B. Database Collection Tools
Design Article Database in Pinterest, Meina Zhu and Jennifer Weebeck
https://www.pinterest.com/zhumeina0000/r-678-emerging-learning-technology/
https://www.pinterest.com/jenniferweebeck/emerging-learning-technologies/

March 12, 2016

10. Yields Products, Goals:
C. Student Generated Timelines, Taxonomies, and Concept Maps
R678 John Falchi, Timeglider, An Abbreviated History of Distance Education
http://timeglider.com/t/50843d8903a48008?min_zoom=1&max_zoom=100

September 3, 2017
Yields Products, Goals:
D. Mindmap Recaps of Online Discussions
Mindmap of Week 2 of R511

10. Yields Products, Goals:
E. Goal Setting Tools
(e.g., I Done This, Milestone Planner, and 43 Things)
10. Yields Products, Goals: F. Student Website Development
RS11 Final Projects, December 12, 2017
(IT and HPT Comparison (Website), Doug Hsu
http://dougandindira.wix.com/r511finalproject)
“IST Construction, Co.”
Rob Elliot, Patrick Walsh, Erin Milanese, RS11, December 2016
http://relliott.net/istconstruction/index.php
“Cousins but Not Twins: Instructional Technology and Human Performance Technology,”
Merve Basdogan and Brett Gary, RS11, December 2016
http://educbasdogan.wixsite.com/511final

Poll #5:
Which of these ideas might you use?
A. Mindmaps of online discussions
B. Edit Wikipedia pages
C. Guest chats with experts and former students
D. Negotiate meanings online (e.g., PiratePad)
E. Online case analyses
F. Facebook course page
G. Guest speaker quotes
H. Student website development

Commitments:
Stop and Share:
Which principle(s) of TEC-VARIETY will you use?
Tone/Climate
Encouragement, Feedback
Curiosity
Variety
Autonomy
Relevance
Interactive
Engagement
Tension
Yields Products

Poll: Now who wants one of these? Any Bingo’s?

Model #2: The R2D2 Model:
Read, Reflect, Display, Do...

Question: How can technology address diverse learner needs?
The R2D2 Model

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.

February 11, 2018
Read 1a. Online Referenceware
The Magical Power of Dictionaries
Alberto Manguel, The Chronicle of Higher Education
https://www.chronicle.com/article/The-Magical-Power-of/242513

January 20, 2016
Read 1b. Listen to Podcasts

Read 1c. Twitter Fed Class Discussions
(e.g., in data science)

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
October 30, 2018
Reflect 2a. Online Debates
Who Can Do My Assignment for Me?
Megan Batchelor, CEO World
https://ceoworld.biz/2018/10/30/who-can-do-my-assignment-for-me/
Assigncode.com: https://assigncode.com/

February 24, 2019
Reflect 2b. Big Issue Reflections
Can Students Handle the Big Questions?
Beth McMurtrie, The Chronicle of Higher Education
https://www.chronicle.com/article/Can-Students-Handle-the-Big/24573
https://godandgoodlife.nd.edu/
https://godandgoodlife.nd.edu/syllabus/
https://www.youtube.com/watch?time_continue=104&v=EMKbtSC3-2I

May 28, 2019
Reflect 2c. What-if Reflections
What If Artificial Intelligence (AI) & Machine Learning (ML) Ruled the World?
Steve Andriole, Forbes

April 13, 2016
Reflect 2d. Interpreting Interactive Graphs and Infographics
How much rainforest in that chocolate bar?
Tech billionaire announces $250 million in cancer immunotherapy funding,
Jayne O'Donnell, USA Today

July 5, 2018
Reflect 2e. Vialogues
EdLab Seminar—Engaging Educators with Digital Collections
Vialogue, Sara Hartman, New Learning Times
https://newlearningtimes.com/cms/article/5426/how-academic-publishing-is-changing-in-the

Reflect 2f. Workplace Internship, Practicum, and Field Experiences
3. Visual Learners

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

Display 3a. Virtualize Words Used (e.g., Wordle, Tagxedo, Tagul, WordSift, Word It Out)

Display 3c. Summary and Comparison Maps

Display 3d. Graphical Recordings

--
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.

Do 4a. Sample Student Work

e.g., Interactive Archive/Gallery of best work
https://arce.calpoly.edu/student-work-
https://coen.boisestate.edu/ece/ece-photo-gallery/

Display 3e. (April 28, 2015)
Concept Mapping and Timeline Tools
(Bubbl.us, Cmap, Gliffy, Spicynodes, or Mindomo)
http://www.spicynodes.org/index.html

Display 3f. Interactive Media Timelines
December 15, 2016
The Digital Era: How 50 years of the information age transformed college forever, Ben Myers & Erica Lusk, The Chronicle of Higher Education
http://www.chronicle.com/interactives/50-years-of-technology

Display 3g. Short Video Anchors
(e.g., TubeChop of V-PORTAL: Video Primers in an Online Repository of e-Teaching and Learning)
Curt Bonk: http://www.tubechop.com/watch/378752

Display 3h. Short Educational Videos:
Anchored Instruction/Macrocontext
CNN, BBC, TED, TED-Ed, ForaTV
BBC One-Minute World News (August 31, 2015)
Weekly 1 minute updates: http://www.danpink.com/pinkcast/
Do 4b. Student Created Recap Videos
Piercarlo Abate: http://www.youtube.com/watch?v=TSq130ollf/A
Qi Li, Gangnam: http://www.youtube.com/watch?v=7Q429lqxZaU&feature=youtu.be
Miguel Lara (Web 2.0 FREEDOM): http://www.youtube.com/watch?v=8cmCFWi9lW8
Kendall Rasnake (Is IT Right For You?): https://www.youtube.com/watch?v=MJ3GUDICIGw

March 11, 2018
Do 4c. PBL in Puerto Rico
https://sites.google.com/iu.edu/pbl-in-puerto rico/home

Poll #6:
Which of these ideas might you use?
A. Interactive map timelines
B. Visualize words used
C. Issue challenges, role plays, and debates
D. Student designed course recap videos
E. Student infographics
F. Interactive timeline tools
G. What-if reflections

Poll #7: How many ideas did you get from this talk?
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.

Poll #8: Which do you prefer... (A) TEC-VARIETY or (B) R2D2?

Any Questions or Comments?
Slides at: TrainingShare.com
Papers: PublicationShare.com
Free book: http://tec-variety.com/
Dr. Curt Bonk – CJBonk@Indiana.edu
http://curtbonk.com/