Teaching and Learning with Technology:
Ultra-Engaging Online and Blended Learning

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(Circa Confucius 551–479 BCE)

July 11, 2017
The Rise of the Phigital Learner
Going 'phigital?' 4 things schools need to know about Generation Z, Todd Kominiak, TrustEd
http://trustedk12.com/phigital-digital-learning/
May 15, 2017
3 must know's about the rising "phigital" student-and why their impact is enormous, Meris Stansbury, eCampus News
https://www.ecampusnews.com/campus-administration/education-gen-z-phigital-student/

Clearly...
Learning is Changing!

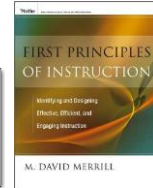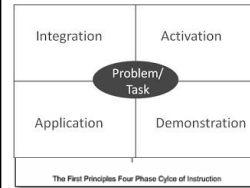**Education 20/20**

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20 New Roles of the Instructor

Captain
Course Ambassador
Consumer Advocate
Curator
Counselor
Cook
Change Catalyst
Conductor
Concierge
Comedian
Consultant
Camping Trip Guide
Coach
Course Expedition Leader
Collaborator
Community Organizer
Chemist
Care Giver
Cultivator
Colleague

Merrill's First Principles of Teaching/Instruction
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

Integration	Activation
	Problem/ Task
Application	Demonstration

The First Principles Four Phase Cylce of Instruction

FIRST PRINCIPLES OF INSTRUCTION

Identifying and Designing Effective, Efficient, and Engaging Instruction

M. DAVID MERRILL

Bonk's Last Principles of Teaching/Instruction (Education 4.0?)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
http://www.applicadthai.com/articles/education-4-0/

1. The Principle of Flexibility
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

6. The Principle of Choice and Options
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

11. The Principle of Sharing
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

20. ??? (what is missing)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

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 encyclopedia, 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
http://www.chicagotribune.com/business/ct-college-craft-beer-offer-classes-20160120-story.html

Top Program at Oregon State is a blended learning program in beermaking!
http://www.chicagotribune.com/business/ct-college-craft-beer-offer-classes-20160120-story.html

January 16, 2019
Survey: Online, Blended Dominate Today's Learning Environments
Rhea Kelly, Campus Technology
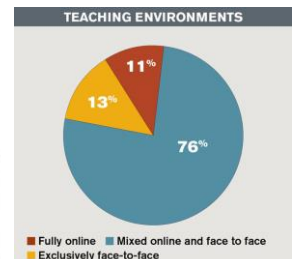*Campus Technology's* 2018 Teaching with Technology Survey
https://campustechnology.com/articles/2019/01/16/survey-online-blended-dominate-todays-learning-environments.aspx?m=2

January 16, 2019
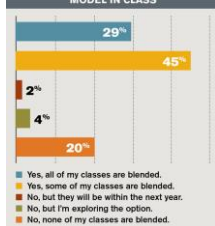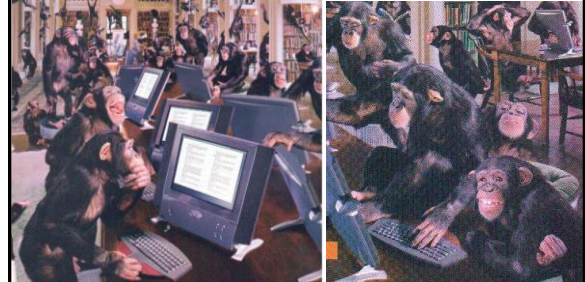**Survey: Online, Blended Dominate Today's Learning Environments**
Rhea Kelly, Campus Technology
Campus Technology's 2018 Teaching with Technology Survey
https://campustechnology.com/articles/2019/01/16/survey-online-blended-dominate-todays-learning-environments.aspx?m=2

Part I. 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/
https://www.youtube.com/watch?v=_CY8sx41_9w
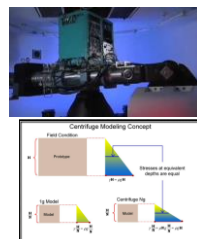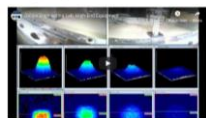
March 8, 2019
Blended Solution #4.
Analyzing Online Raw Data
(e.g., Editing computer code; 12 Best Code Editors for Mac and Windows for Editing WordPress Files)
https://www.wpbeginner.com/showcase/12-best-code-editors-for-mac-and-windows-for-editing-wordpress-files/
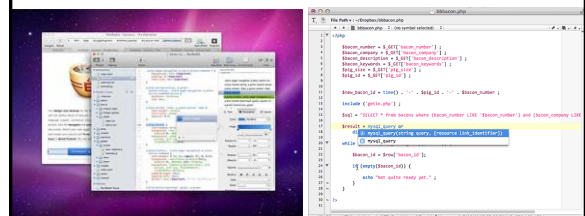
Blended Solution #5.
Reading from Open Access Journals
(e.g., DOAJ—Directory of Open Access Journals)
https://doaj.org/
https://www.electrical4u.com/

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

July 11, 2018
Blended Solution #7.
Streaming Live Events
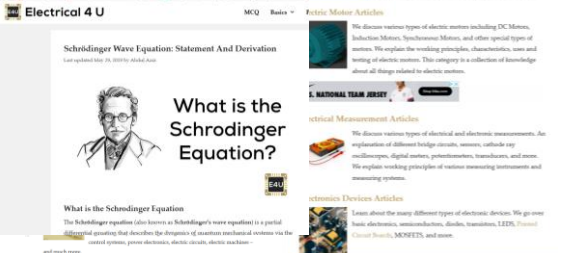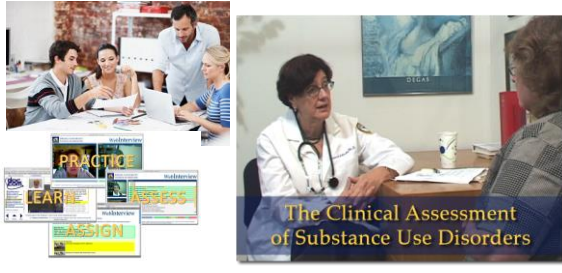**Open Data Science Conference (ODSC)**
Women in Data Science, Stanford University
https://odsc.com/boston/east-2019-livestream
https://www.widsconference.org/speakers-466253.html

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.
https://www.youtube.com/watch?v=_i7owTK3Q0E

Blended Solution #10.
Online Videos with Test Questions
(e.g., TEDEd)
(Lessons about every single element on the periodic table)
http://ed.ted.com/periodic-videos?utm_source=TED-Ed+Subscribers&utm_campaign=92b1054add-
2013_09_219_19_2013&utm_medium=email&utm_term=0_1aaccced48-92b1054add-46761201

Blended Solution #11.
Video Tutorials, Demonstrations, and How-To's (videos, tutorials, etc.)
(Jing, GoView, Screenr, Overstream, Screencast-o-Matic;)

August 22, 2019
Blended Solution #12. Blended Students
At Indiana U., video platform blends traditional and distance education
Betsy Foresman, edscoop
https://edscoop.com/indiana-university-video-conferencing-technology/

Part II: Best Practices for Online and Blended learning:
Introducing the TEC-VARIETY Model
http://tec-variety.com/
http://tec-variety.com/TEC-VARIETY-Chinese.pdf

Needed: New Models of Motivation and Engagement

October 22, 2019
Indian students wear boxes on their heads during exam to prevent cheating
Jessie Yeung, CNN
https://amp-cnn-com.cdn.ampproject.org/c/s/amp.cnn.com/cnn/2019/10/21/india/india-student-box-cheating-intl-hnk-scli/index.html

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March 20, 2015
Bihar cheating scandal:
What parents in India will do for good grades
Kunal Sehgal, CNN
https://www.cnn.com/2015/03/20/asia/india-cheating-parents-school-tests/index.html

November 12, 2019
More South Korean academics caught naming kids as co-authors
Mark Zastrow, Nature
https://www.nature.com/articles/d41586-019-03371-0
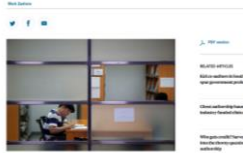
Poll #3: What did Jean-Luc Picard say?
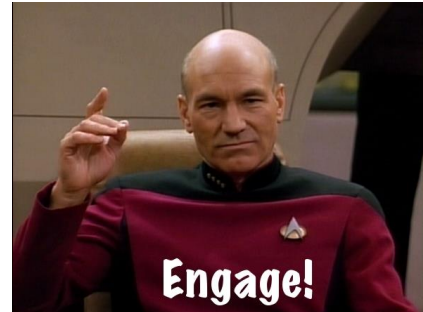
Motivation Research Highlights
(Jere Brophy, Michigan State University)

1. **Supportive**, appropriate **challenge**, **meaningful**, moderation/optimal.
2. Teach **goal** setting and self-reinforcement.
3. Offer **rewards** for good/improved performance.
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.

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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 / Low ↔ Student-Focus / High

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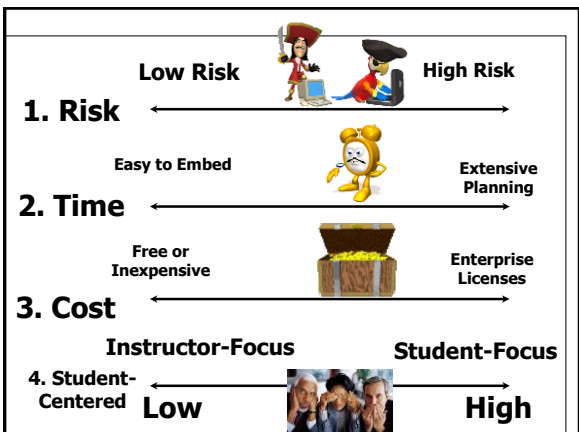
Examples of TEC-VARIETY

April 3, 2017
1. Tone/Climate:
A. Sli.do
https://www.sli.do/
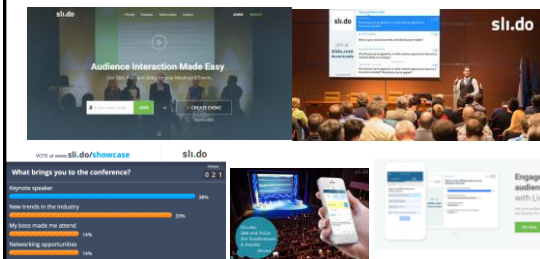
June 18, 2018
1. Tone/Climate:
B. Threaded Video Discussions and Questions
(e.g., Flipgrid)
Microsoft acquires social learning platform Flipgrid,
Brian Heater, TechCrunch
https://techcrunch.com/2018/06/18/microsoft-acquires-social-learning-platform-flipgrid/
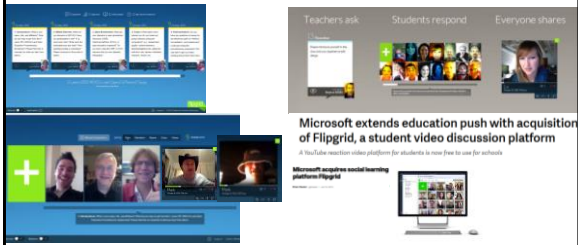
July 1, 2019
1. Tone/Climate:
B. Threaded Video Discussions and Questions
Teachers Flip Over Flipgrid
Tom Vander Ark, Forbes
https://www.forbes.com/sites/tomvanderark/2019/07/01/teachers-flip-over-flipgrid/#7d2f6831641a
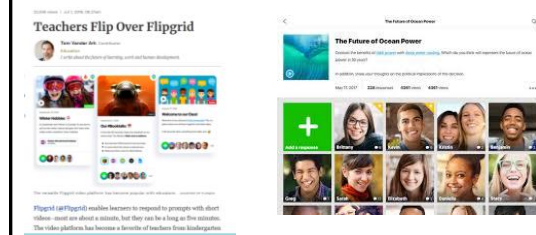
1. Tone/Climate:
C. Instructor Course Introductions
Chuck Severance, U Michigan/Coursera) in Barcelona
http://www.youtube.com/watch?v=JzNHvmSv8TI
Chuck Severance, University of Michigan
https://www.coursera.org/course/pythonlearn

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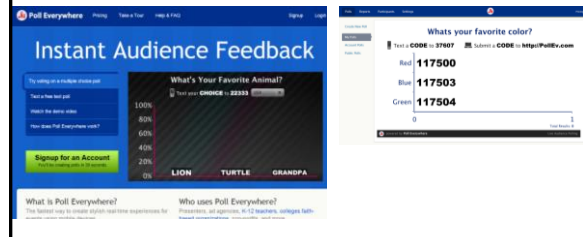
2. Encouragement, Feedback:
B. Voice/Audio Feedback
Vocaroo: http://vocaroo.com/

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)
http://www.cnn.com/2014/11/06/living/oldest-photograph-human-daguerre/index.html?hpt=hp_t4.kong

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March 31, 2019
3. Curiosity, Intrigue, Unknowns:
A. Multimedia News
Ancient whales walked on four legs and moved like giant otters -- seriously
Jen Christensen, CNN
https://www.cnn.com/2019/04/04/health/four-legged-whale-otter-scn/index.html

April 17, 2017
3. Curiosity, Intrigue, Unknowns:
B. Extreme News
1st woman to officially run Boston Marathon does it again, 50 years later
Emanuella Grinberg, CNN, USA Today
http://www.cnn.com/2017/04/17/us/boston-marathon-kathrine-switzer-trnd/index.html
July 16, 2017
Julia Hawkins Sets 100-Meter Dash Record for Women 100 Years or Older, Joseph Zucker, CNN
http://bleacherreport.com/articles/2721985-julia-hawkins-sets-100-meter-dash-record-for-women-100-years-or-older?utm_source=cnn.com&utm_medium=referral&utm_campaign=editorial

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
https://www.cnn.com/2018/09/27/world/new-giant-dinosaur-brontosaurus-relative/index.html

February 21, 2019
Learning is More Immediate...
Tiny tyrannosaur fossil discovery changes the dinosaur timeline
Ashley Strickland, CNN
https://www.cnn.com/2019/02/21/world/tiny-tyrannosaur-fossil-discovery/index.html

November 28, 2018
Learning is More Immediate...
'Siberian unicorn' once walked among early humans
Tara John, CNN
https://edition.cnn.com/2018/11/27/europe/siberian-unicorn-humans-scli-intl/index.html

November 19, 2015
Learning is More Immediate...
New daddy longlegs named after 'Lord of the Rings' character Smeagol, Mary Bowerman, USA Today
http://www.usatoday.com/story/tech/nation-now/2015/11/19/new-daddy-longlegs-named-after-lord-rings-character-smeagol/76037286/

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
https://www.facultyfocus.com/articles/teaching-with-technology-articles/im-kahoots-technology-classroom/

January 24, 2019
4. Variety, Novelty, Fun, Fantasy:
D. Design or Play Games
Mash Up and Republish Like It's 1923
Greg Toppo, Inside Higher Ed
https://www.insidehighered.com/news/2019/01/24/new-release-1923-titles-boon-artists-scholars

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)
Beer Matters: Free Online Class With Meetups
Karl Brown, Assistant Professor of History
http://www.uww.edu/ce/beer-matters
http://www.gazettextra.com/20160921/uw_whitewater_teacher_explores_links_between_germans_beer_politics
https://vimeo.com/286408659
Video: http://curtbonk.com/beer.html (1:11)
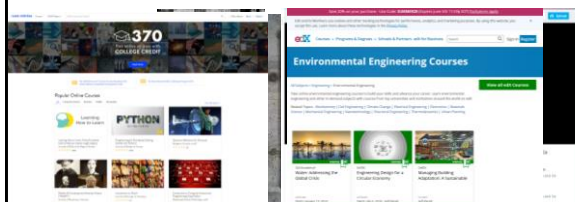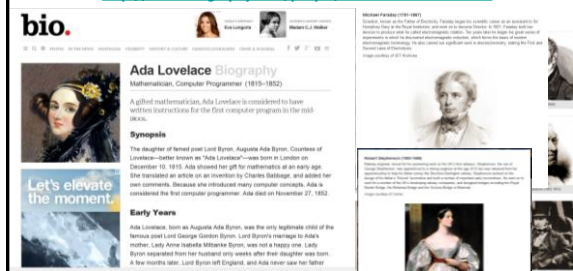
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5. Autonomy, Choice:
B. Tracking the Life of a Computer Scientist
(e.g., bio.com)
http://www.biography.com/people/steve-jobs-9354805
http://www.biography.com/people/ada-lovelace-20825323

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5. Autonomy, Choice:
C. Design Multimedia Glossaries
P540 Final Assignment: Nate Wynne, Supersized Personal Course Glossary
http://natewynne1982.wix.com/p540courseglossary
Ozgur Ozdemir, December 2012
http://r685glossary.shutterfly.com /
Umida Khikmatillaeva, Dec. 2011, P540
http://learningplanet.shutterfly.com/

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

(Zoom Meetings)
6. Relevance, Meaningfulness:
A. Weekly Guest Expert Chats
R511 Chat with Mike Molenda, IU

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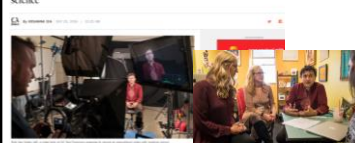**B. Case-Based Learning: Instructor Cases**
(e.g., Mark Braun, IU)

Stomach, endoscopic examination and biopsy:
Poorly differentiated tubular adenocarcinoma

Final conclusion:
Advanced gastric carcinoma with multiple lung metastasis with lymphangitic growth

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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
https://www.chronicle.com/article/Women-s-Studies-Students/242866

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

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7. Interactive, Collaborative:
A. Negotiate Meanings Online
(e.g., PiratePad: http://meetingwords.com/)
http://blogs.elon.edu/technology/6-collaborative-writing-applications-for-group-projects-or-papers/
MeetingWords, Google Docs, NowComment, MixedInk

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

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

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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 (UNCC) of Charlotte enables students to conduct experiments, access, interpret, evaluate, and exchange relevant technical information.
https://virtuallyinspired.org/portfolio/online-engineering-lab-with-high-end-equipment/
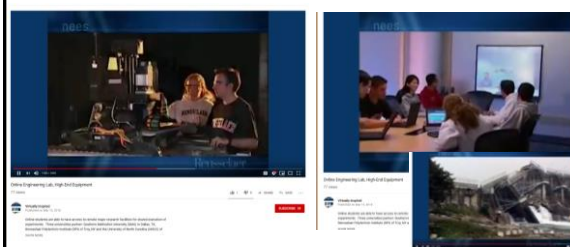
7. Interactive, Collaborative:
E. Explore Simulations in Virtually Inspired
https://virtuallyinspired.org/portfolio/online-engineering-lab-with-high-end-equipment/
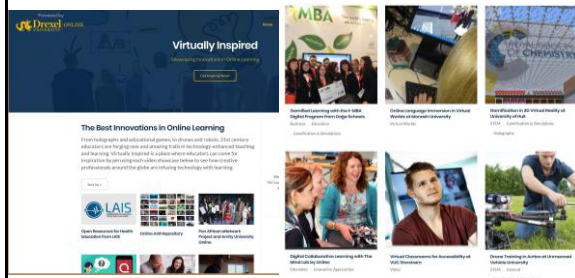
March 27 and April 12, 2019
7. Interactive, Collaborative:
F. Cross-Institutional and Cross-Cultural Projects
Learning From Others Across the World Through Video Exchange
Melanie Hering, New Learning Times
https://newlearningtimes.com/cms/article/6072/learning-from-others-across-the-world-through
Four 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

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7. Interactive, Collaborative:
F. Global Collaboration
CNA - Speaking Exchange (video chats)
https://www.youtube.com/watch?v=-S-5EfwpFOk
FCB Brazil and the CNA language school network are launching the Speaking Exchange
project, which connects CNA students in Brazil with Americans living in retirement
homes.
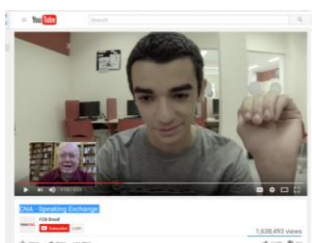
July 17, 2017
8. Engagement, Involvement:
A. Learning Chemistry in Virtual Reality,
Sarah Hardman, New Learning Times
https://newlearningtimes.com/cms/article/4519/learning-chemistry-in-virtual-reality
1:38 video: https://vialogues.com/vialogues/play/38337/
All: http://curtbonk.com/chemistry-vr.html
01.-.41: http://curtbonk.com/chemistry-vr-1.html
.41-1:16: http://curtbonk.com/chemistry-vr-2.html
1:16-1:36: http://curtbonk.com/chemistry-vr-3.html

May 28, 2019
8. Engagement, Involvement:
B. Virtual Reality Comes to the Classroom
Beth McMurtrie, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20190528-ImmersiveTech
A virtual-reality experience for students in a conducting class: http://curtbonk.com/virtual-o.htm
A group of students could gather around a virtual heart: http://curtbonk.com/vrheart.html

Unlike VR headsets, augmented-
reality glasses allow users to see
the world around them, opening
up possibilities for shared learning
experiences. A group of students
could gather around a virtual heart
as their professor takes it apart to
show them the components.
(*Microsoft*)

May 18, 2017
8. Engagement, Involvement:
C. Learning is More Immersive
Google Expeditions Adds Augmented Reality for Classrooms, Sri Ravipati, THE Journal
https://thejournal.com/articles/2017/05/18/google-expeditions-adds-augmented-reality-for-
classrooms.aspx
https://www.youtube.com/watch?v=-DYqlaMWTVg
27 seconds http://curtbonk.com/thejournal27.html
38 Seconds http://curtbonk.com/thejournal38.html
1: 10: http://curtbonk.com/thejournal.html

July 26, 2018
8. Engagement, Involvement:
C. Learning is More Immersive
Rome Reborn
https://www.romereborn.org/

May 28, 2019
8. Engagement, Involvement:
C. Virtual Worlds for English Literature
Virtual Reality Comes to the Classroom
Michael Bugeja, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20190528-ImmersiveTech
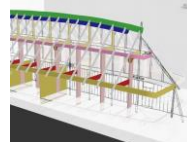
At Grinnell College, students working with Tim Arner, an associate professor of English, have been virtually constructing Heorot, the medieval mead hall featured in Beowulf. Arner says that taking a virtual walk inside the hall will give students a clearer sense of space, culture and power structures than reading the text alone. "The actual hall might be smaller than what our imagination wants it to be if we're basing it on images from Game of Thrones or a visit to Westminster Abbey," he says. "It's not that kind of place at all." (*Grinnell College Immersive Experiences Lab*)

May 28, 2019
8. Engagement, Involvement:
C. Learning is More Immersive
Virtual Reality Comes to the Classroom
Beth McMurtrie, The Chronicle of Higher Education
https://www.chronicle.com/interactives/20190528-ImmersiveTech
A virtual-reality experience for students in a conducting class: http://curtbonk.com/virtual-o.htm
A group of students could gather around a virtual heart: http://curtbonk.com/vrheart.html

July 19, 2017
8. Engagement, Involvement:
c. HoloLens Assists in Live Surgery
Tommy Palladino, Next Reality
https://hololens.reality.news/news/hololens-assists-live-surgery-0178887/
Video #1: 1:09: http://curtbonk.com/hololens.html
Video #2: 1:37: http://curtbonk.com/hololens2.html
**07/19/2017**
HoloLens Assists in Live Surgery
Numerous examples exist of doctors and surgeons using HoloLens to plan surgeries. The device has even been used to view reference images during a procedure and stream it to a remote audience. Until recently, it has not been used to augment the surgeon's view of the patient during a live surgery.
Original Video: https://hololens.reality.news/news/hololens-assists-live-surgery-0178887/
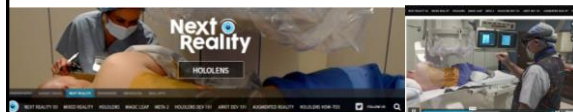
July 25, 2019
8. Engagement, Involvement:
C. Digital conservationist group CyArk captured images of each site using photogrammetry, enabling virtual tourists to walk through 360-degree renderings of places that are normally off limits.
https://www.cyark.org/
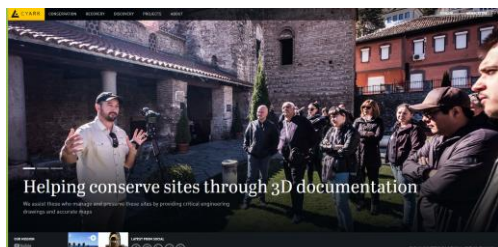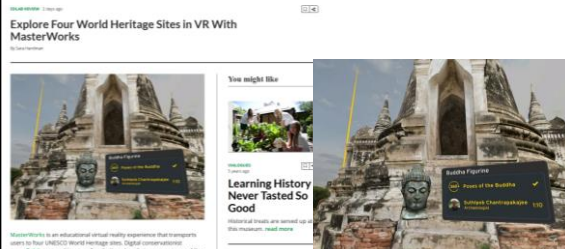

July 23, 2019
8. Engagement, Involvement:
C. Explore Four World Heritage Sites in VR With MasterWorks
Sara Hardman, New Learning Times
https://newlearningtimes.com/cms/article/6385/explore-four-world-heritage-sites-in-vr-with

August 8, 2017
8. Engagement, Involvement:
C. Games and Simulations
ShortSims
http://www.shortsims.com/
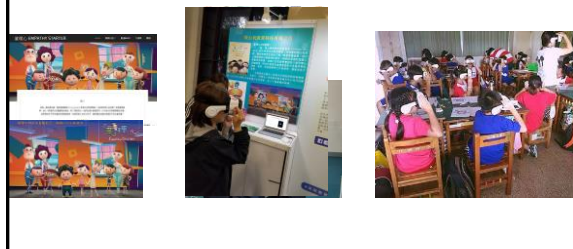Clark Aldrich clark@clarkaldrichdesigns.com

December 5, 2018
8. Engagement, Involvement:
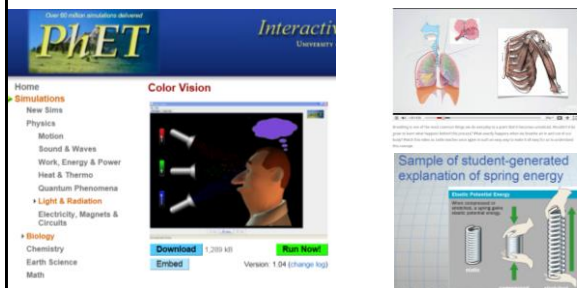**D. Virtual Reality**
Empathy Starter, Penny Pan
Here is more info (in Chinese)
project video   https://www.youtube.com/watch?v=YwxDvqdG_ZQ
project website   https://www.atplay.tw/projects
KAAA fan page   https://www.facebook.com/樂齡入門館-587008344723426/

8. Engagement, Involvement:
E. Interactive Labs and Simulations
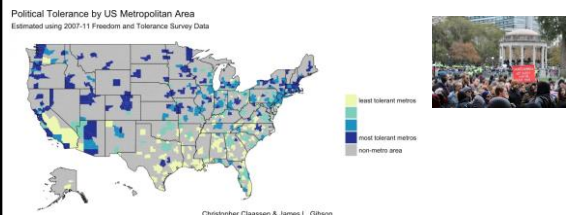http://phet.colorado.edu/en/simulation/energy-skate-park

February 14, 2018
8. Engagement, Involvement:
F. Maps **(This map shows where more Americans are willing to support free speech, The Monkey Cage, The Washington Post)**
https://www.washingtonpost.com/news/monkey-cage/wp/2018/02/13/does-free-speech-help-democracy-we-did-the-research/?utm_term=.031586cdd43d

March 30, 2017
8. Engagement, Involvement:
G. Interactive Timelines
(Dipity, xtimeline, Simile, TimeLineCurator, etc.)
http://usatoday30.usatoday.com/tech/news/story/2011-09-22/steve-jobs-dies/50672498/1
Amy Cavender, The Chronicle of Higher Education
http://www.chronicle.com/blogs/profhacker/simplifying-timeline-creation-with-timelinecurator/63822

July 28, 2017
9. Tension, Challenge, Controversy, etc.:
A. Scenario-Based Learning and Challenges
Modern medicine breathes new life into virtual training
https://www.usatoday.com/videos/tech/2017/07/28/modern-medicine-breathes-new-life-into-virtual-training/104073696/
Videos
2:34 (entire video): http://curtbonk.com/vr-medicine4b.html
.01-.21: http://curtbonk.com/vr-medicine.html
.37-.56: http://curtbonk.com/vr-medicine2.html
.57-1.29: http://curtbonk.com/vr-medicine3.html
1:30-2:27: http://curtbonk.com/vr-medicine4.html

9. Tension, Challenge, Controversy, etc.:
B. Controversial Issue Debates
Librarians for Instructional Technology,
Latrice Booker, R511, Fall 2016
http://bookerlr2000.wixsite.com/librariansforit/cognitivism
R511 Midterm Video How to Create an Authentic Environment in a Content-Driven School?, R511, Nick and Nik
https://www.youtube.com/watch?v=Bcr3_aZT_xQ&feature=youtu.be

9. Tension, Challenge, Controversy, etc.:
C. Yes, Mr. President, We Remade
Our Atlas to Reflect Shrinking Ice
Christine Dell'Amore, National Geographic, August 3, 3015
http://news.nationalgeographic.com/2015/08/150803-arctic-ice-obama-climate-nation-
science/?utm_content=buffer8a394&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

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/jennifertwebeck/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
https://bubbl.us/Mjg2MzMxOC84MjYzNjcxL 3UyODQzMzQ0NTQ2YzQwZDlmNDE3ZWE3OWYwMmJmYTI3-X

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
R511 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, R511, December 2016
http://relliott.net/istconstruction/index.php
"Cousins but Not Twins: Instructional Technology and Human Performance Technology,"
Merve Basdogan and Brett Gary, R511, December 2016
http://educbasdogan.wixsite.com/511final
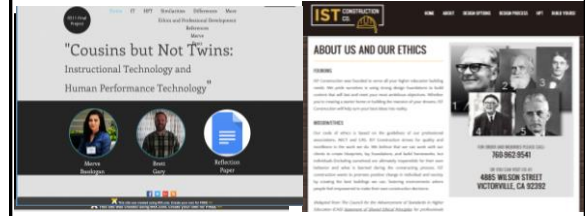
Poll #5:
Which of these ideas might you use?

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
**E**ngagement
Tension
Yields Products

What motivates?
1. **Tone/Climate:** Psychological Safety, Comfort, Sense of Belonging
2. **Encouragement:** Feedback, Responsiveness, Praise, Supports
3. **Curiosity:** Surprise, Intrigue, Unknowns
4. **Variety:** Novelty, Fun, Fantasy
5. **Autonomy:** Choice, Control, Flexibility, Opportunities
6. **Relevance:** Meaningful, Authentic, Interesting
7. **Interactivity:** Collaborative, Team-Based, Community
8. **Engagement:** Effort, Involvement, Investment
9. **Tension:** Challenge, Dissonance, Controversy
10. **Yielding Products:** Goal Driven, Purposeful Vision, Ownership

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

Part III: The R2D2 Model:
Read, Reflect, Display, Do...
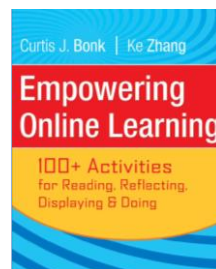
Question: How can technology address diverse learner needs?

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

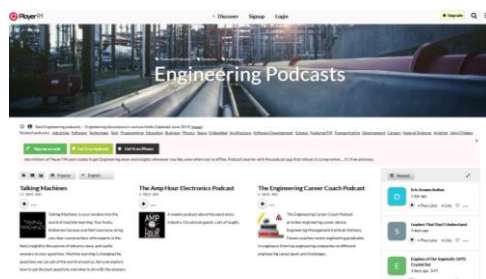- **Auditory and verbal learners prefer words, spoken or written explanations.**

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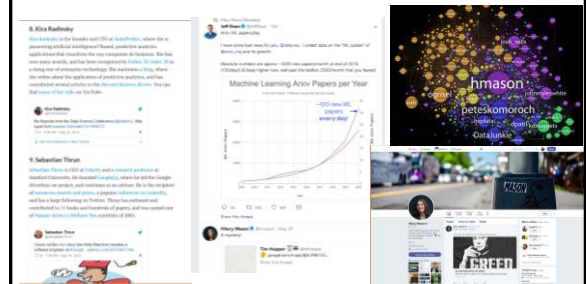### Read 1a. Online Referenceware
The Magical Power of Dictionaries
Alberto Manguel, The Chronicle of Higher Education
https://www.chronicle.com/article/The-Magical-Power-of/242513

January 20, 2016
Read 1b. Listen to Podcasts

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

June 19, 2019
Read 1c. DeepZen will allow authors to turn ebooks into audiobooks
Michael Kozlowski, Good e-Reader
Deep Zen, IBM
http://deepzen.io/
1) http://curtbonk.com/deepzen1.html
2) http://curtbonk.com/deepzen2.html

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/245753
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
https://www.forbes.com/sites/steveandriole/2019/05/28/what-if-expert-systems-ruled-the-world-understanding-aiml-first-principles/#7874c09c688a
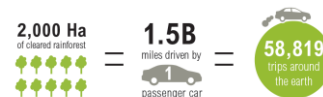

April 13, 2016
Reflect 2d. Interpreting Interactive Graphs and Infographics
How much rainforest in that chocolate bar?
Tech billionaire announces $250 million in cancer immunotherapy funding,
Jayne O'Donnell, USA Today
http://www.usatoday.com/story/news/2016/04/13/billionaire-announces-250-million-cancer-immunotherapy-funding/82821198/

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

October 24, 2018
Reflect 2g. Session Recap Mindmaps
**Emerging Online Learning Tools Research Session Mindmap**
Learnlets, Clark Quinn
https://blog.learnlets.com/2018/10/emerging-online-learning-tools-research-session-mindmap/?fbclid=IwAR11_0o6CXdPeI3vN-ndq72EgDykziwgM_Q8U9WMdjUq4LwljlDa0_D9qII

May 2, 2019
Reflect 2h. Learning is More Digitally Rich...
What was Leonardo da Vinci doing at your age?, CNN
https://www.cnn.com/interactive/style/leonardo500/
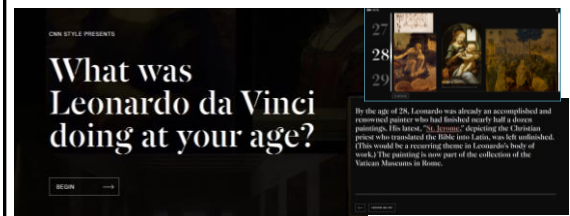
3. Visual Learners

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

Display 3a. Virtualize Words Used (e.g., Wordle, Tagzedo, Tagul, WordSift, Word It Out)
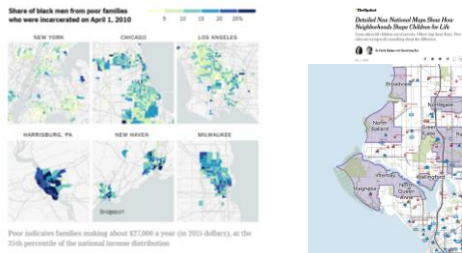
October 1, 2018
Display 3b. Detailed New National Maps Show How Neighborhoods Shape Children for Life
By Emily Badger and Quoctrung Bui. The New York times
https://www.nytimes.com/2018/10/01/upshot/maps-neighborhoods-shape-child-poverty.html

April 3, 2019
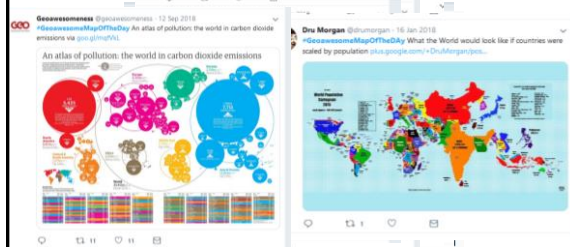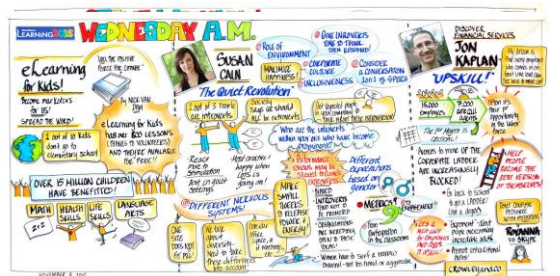**Display 3c.** Summary and Comparison Maps
#GeoawesomeMapOfTheDay
https://twitter.com/geoawesomeness
https://www.instagram.com/p/BNwgvJfDAq3/
https://twitter.com/hashtag/GeoawesomeMapOfTheDay?src=hash

December 17, 2015
Display 3d. Graphical Recordings
Elliott Masie's Learning 2015, Nov 1-4, 2015
http://learningtalks.com/learning-2015-videos/sabrina-kay-the-learner/
http://www.imagethink.net/

Display 3e. (April 28, 2015)
Concept Mapping and Timeline Tools
(Bubbl.us, Cmap, Gliffy, Spicynodes, or Mindomo)
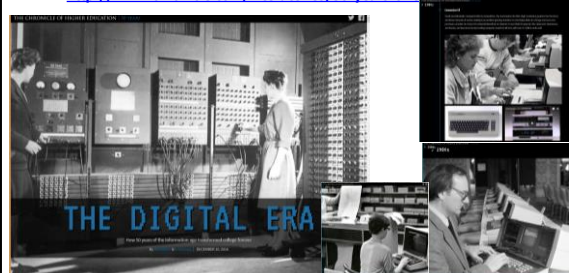http://www.spicynodes.org/index.html
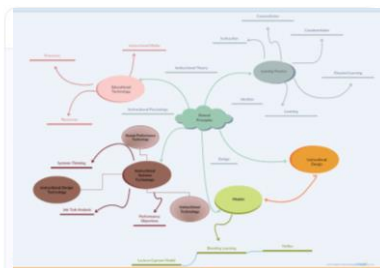
December 15, 2016
Display 3f. Interactive Media Timelines
The Digital Era: How 50 years of the information age transformed college forever, *Ben Myers & Erica Lusk, The Chronicle of Higher Education*
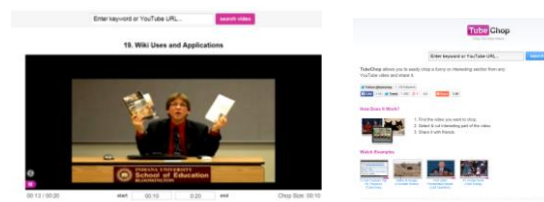http://www.chronicle.com/interactives/50-years-of-technology

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)
http://www.bbc.com/news/business-34105708
Weekly 1 minute updates: http://www.danpink.com/pinkcast/

The 'radical' Barenboim piano unveiled

Can Indian GDP continue to outstrip China?

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-0
https://coen.boisestate.edu/ece/ece-photo-gallery/
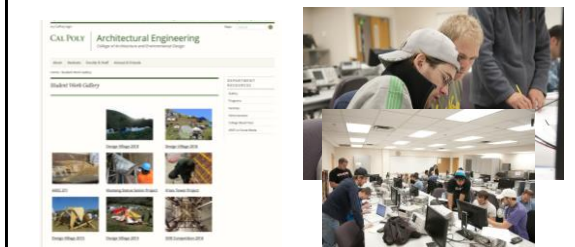
Do 4b. Student Created Recap Videos
Piercarlo Abate: http://www.youtube.com/watch?v=_-TURzHO0aU
Qi Li, Gangnam: http://www.youtube.com/watch?v=7Q429lqxZaU&feature=youtu.be
Miguel Lara (Web 2.0 FREEDOM): http://www.youtube.com/watch?v=8cmCFWi9IW8
Kendai Rasnake (Is IT Right For You?): https://www.youtube.com/watch?v=MJ3GUDICIGw
Kimberly Vincent-Layton: https://www.youtube.com/watch?v=4Ic39_rYLI1&feature=youtu.be
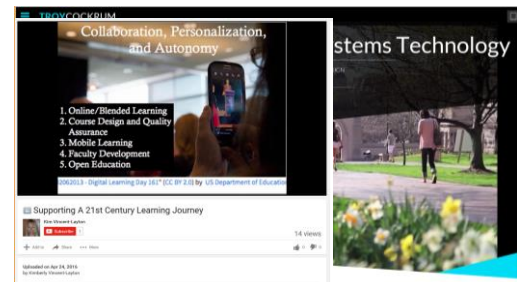
March 11, 2018
Do 4c. PBL in Puerto Rico
https://sites.google.com/iu.edu/pbl-in-puerto-rico/home
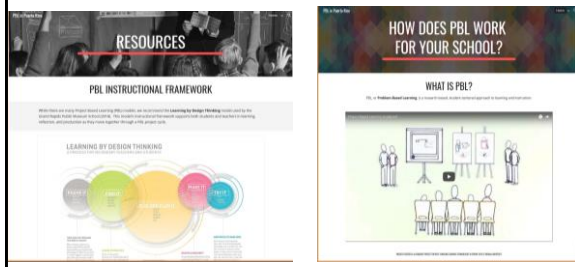
Poll #6:
Which of these ideas might you use?
A. Interactive map timelines
B. Visualize words used
C. Issue challenges, role plays, and debates
D. Student designed course recap videos
E. Student infographics
F. Interactive timeline tools
G. What-if reflections

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.
7. More than 10.

BRAINY IDEAS

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

ADDING SOME TEC-VARIETY

What motivates?
1. **Tone/Climate:** Psychological Safety, Comfort, Sense of Belonging
2. **Encouragement:** Feedback, Responsiveness, Praise, Supports
3. **Curiosity:** Surprise, Intrigue, Unknowns
4. **Variety:** Novelty, Fun, Fantasy
5. **Autonomy:** Choice, Control, Flexibility, Opportunities
6. **Relevance:** Meaningful, Authentic, Interesting
7. **Interactivity:** Collaborative, Team-Based, Community
8. **Engagement:** Effort, Involvement, Investment
9. **Tension:** Challenge, Dissonance, Controversy
10. **Yielding Products:** Goal Driven, Purposeful Vision, Ownership

Reading — Verbal and Auditory Learners
Reflecting — Reflective & Observational Learners
Displaying — Visual learners
Doing — Hands-on learners

Solution Evaluation & Knowledge Transfer
Problem Orientation & Knowledge Acquisition
Solution Seeking Analysis & Knowledge Representation
Problem clarification & Knowledge contruction

We are entering a jumping off point...
(South University of Science and Technology of China, Wednesday June 10, 2015)

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/

MAKE IT SO