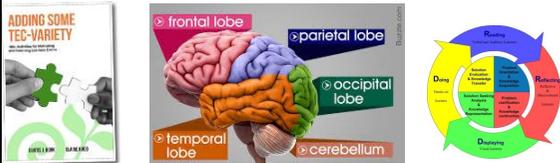


## Masterclass Part II: Ultra-Engaging Learning With Technology: Introducing the TEC-VARIETY and R2D2 Models

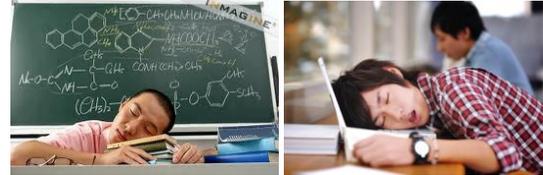
Curtis J. Bonk, IST Professor  
Indiana University

[cibonk@indiana.edu](mailto:cibonk@indiana.edu); <http://curtbonk.com/>



1

## Needed: New Models of Motivation and Engagement



2

## October 22, 2019 Indian students wear boxes on their heads during exam to prevent cheating

Jessie Yeung, CNN

<https://amp.cnn.com/cnn.amproject.org/c/a/amp.cnn.com/cnn/2019/10/21/india/india-student-box-cheating-intl-hnk-scl/index.html>



3

## March 20, 2015 Bihar cheating scandal: What parents in India will do for good grades Kunal Sehgal, CNN

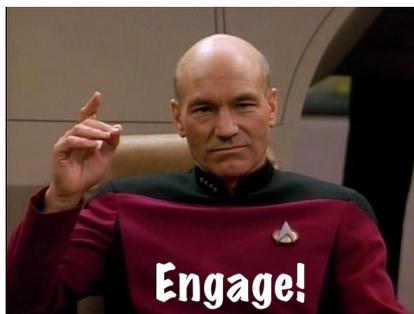
<https://www.cnn.com/2015/03/20/asia/india-cheating-parents-school-tests/index.html>

Bihar cheating scandal: What parents  
in India will do for good grades



4

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



5

## 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.



6

## 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)

See: Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. NY: Plenum Press.



7

## Part 1: Introducing the TEC-VARIETY Model (Motto: It’s better than the “TEC-MONOTONY” Model)

<http://tec-variety.com/>  
<http://tec-variety.com/TEC-VARIETY-Chinese.pdf>

在线学习动机与激励:  
TEC-VARIETY 模型  
——美国著名在线学习专家 100 个启示



8

## May 9, 2018 A Review of Innovative Teaching Methods Academic Radiology

<https://med.nyu.edu/departments-institutes/innovations-medical-education/>



9

## March 2019 Twelve tips for integrating massive open online course content into classroom teaching The Medical Teacher

[https://www.researchgate.net/publication/331694465\\_Twelve\\_tips\\_for\\_integrating\\_massive\\_open\\_online\\_course\\_content\\_into\\_classroom\\_teaching](https://www.researchgate.net/publication/331694465_Twelve_tips_for_integrating_massive_open_online_course_content_into_classroom_teaching)



10

## March 2019 Twelve tips for integrating massive open online course content into classroom teaching MedEdPublish

[https://www.researchgate.net/publication/331694465\\_Twelve\\_tips\\_for\\_integrating\\_massive\\_open\\_online\\_course\\_content\\_into\\_classroom\\_teaching](https://www.researchgate.net/publication/331694465_Twelve_tips_for_integrating_massive_open_online_course_content_into_classroom_teaching)



11

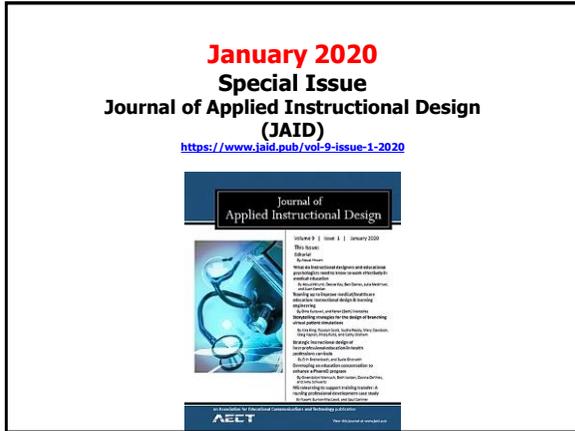
## 2019 Rachel H. Ellaway Technology-enhanced Learning *Understanding Medical Education: Evidence, Theory, and Practice*, Third Edition. Edited by Tim Swanwick, Kirsty Forrest and Bridget C. O'Brien. © 2019 The Association for the Study of Medical Education (ASME). Published 2019 by John Wiley & Sons Ltd.

Technology-enhanced Learning 141

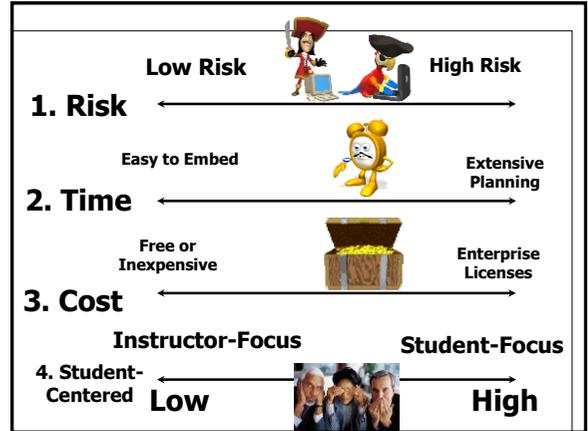
BOX 10.1 Learning activity types and associated mediating technologies		
Control activities	Read, explain, reflect, remember, synthesise	Examples of mediating technologies Knowledgebases such as Wikipedia, eBooks, note taking and mind mapping tools
Abstractive activities	Presentations, storytelling, readings, forums	PowerPoint, YouTube, podcasts, vodcasts
De-type activities	Practice, discovery, games, simulations	Case-based simulations, virtual patients, games, e-simulations, virtual task trainers
Connective activities	Forums, peer aids, research, original work	eHealth systems and tools, bibliographic databases, decision support tools
Social activities	Discuss, collaborate, observe others, reflect on own ability	Discussion boards, Twitter, blogs, wikis, social media
Just activities	Challenge, perform, assess, evaluate, provide feedback	Quizzes, test banks, summative games, simulations
Collective activities	Logging, tracking, storing, organising, reporting	Educator logging, portfolios, CVs, analytics, professional development management systems

Source: Adapted from Horton [5].

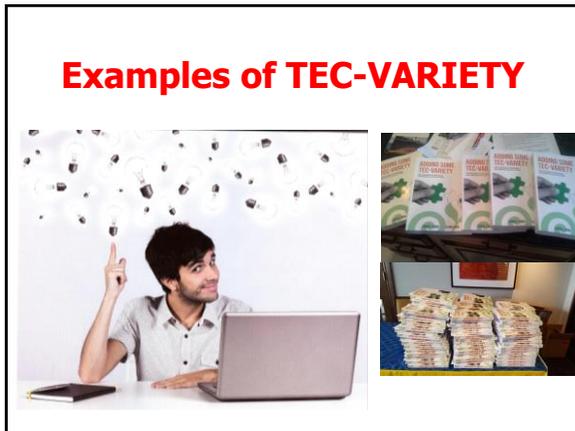
12



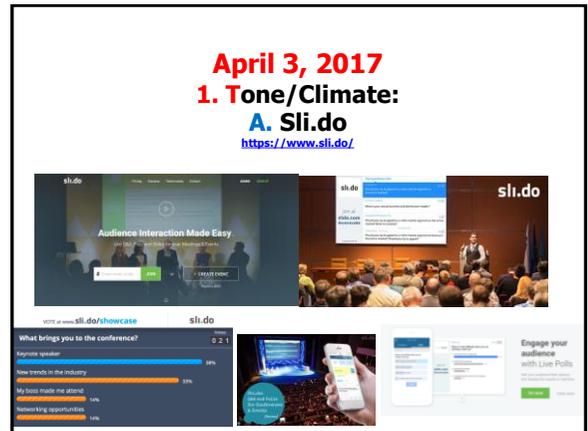
13



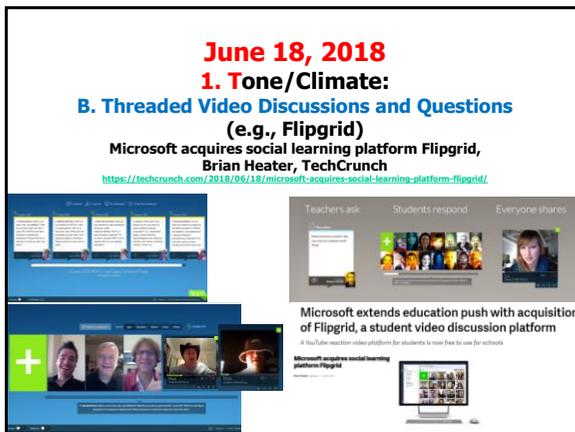
14



15



16



17



18

**1. Tone/Climate:**  
**D. Instructor Course Introductions**  
 Lynne Innes (Scotland): <https://vimeo.com/356645285>

19

**2. Encouragement, Feedback:**  
**A. Poll Everywhere, BlogPoll, MicroPoll**  
 Connect students across campuses  
 (School of Medicine, Flinders University)

Statement	Count
I have selected my patient	17
I have provided an information sheet to the patient's GP	11
I have gained consent from the patient	13
I have seen the patient since	11
I have seen the patient more than once	13
I have conducted a home visit with the patient	8

20

**2. Encouragement, Feedback:**  
**B. Voice/Audio Feedback**  
 Vocaroo: <http://vocaroo.com/>

21

**June 11, 2019**  
**2. Encouragement, Feedback:**  
**C. Home workout: Companies like Peloton, Mirror, FightCamp push remote fitness forward**  
 Davin Brown, The USA Today  
<https://www.usatoday.com/story/tech/2019/06/11/how-5-g-wearables-and-ai-help-bring-smart-gyms-your-home/1331406001/>

22

**January 23, 2020**  
**3. Curiosity, Intrigue, Unknowns:**  
**A. How dangerous is the Coronavirus?**  
 Podcast, Sky News, UK  
<https://news.sky.com/story/coronavirus-uk-made-plague-game-downloads-soar-in-china-amid-virus-outbreak-11915754>  
 Whole podcast: <http://curtbonk.com/coronapodcast.html>  
 First 2 minutes of video: <http://curtbonk.com/corona-2min.html>  
 First 2 minutes of podcast: <http://curtbonk.com/coronapodcast-2min.html>

23

**May 19, 2011**  
**3. Curiosity, Intrigue, Unknowns:**  
**B. Outbreak Trailer**  
<https://www.youtube.com/watch?v=AgZ5p0Jbn0>

24



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

The screenshot shows the Random.org website with two main sections: 'Coin Flipper' and 'Dice Roller'. The Coin Flipper section shows two virtual coins and a timestamp of 2011-08-13 01:04:43 UTC. The Dice Roller section shows two dice and a timestamp of 2011-08-13 01:11. There are buttons for 'Roll Again' and 'Go Back' in both sections.

31

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

The screenshot shows the Jeopardy Rocks website. On the left is a game board with various dollar amounts (e.g., \$100, \$200, \$300, \$400, \$500) and categories. On the right is a blue slide with white text that reads: 'BANDURA (1961) CONDUCTED A STUDY TO INVESTIGATE IF SOCIAL BEHAVIORS (I.E. AGGRESSION) CAN BE ACQUIRED BY OBSERVATION AND IMITATION. THE NAME OF THE FAMOUS EXPERIMENT IS:'.

32

**4. Variety, Novelty, Fun, Fantasy:**  
**C. Kahoot!**  
<https://getkahoot.com/>

The screenshot shows a Kahoot! presentation slide. The title is 'I'm in 'Kahoots' with Technology in the Classroom'. Below the title is a photo of a young man with glasses looking at a screen. The slide also includes social media icons and a small text box that says 'From Kahoot! with Technology in the Classroom'.

33

**October 10, 2018**  
**4. Variety, Novelty, Fun, Fantasy:**  
**D. FutureMe.org**  
 Write a letter to the future  
<https://www.futureme.org/>

The screenshot shows the FutureMe.org website. The main heading is 'Write a letter to the future'. Below this is a form with fields for 'Name', 'Email', and 'Message'. There are also checkboxes for 'I want to receive my letter' and 'I want to receive my letter'. The page has a blue and white color scheme.

34

**February 21, 2017**  
**4. Variety, Novelty, Fun, Fantasy:**  
**E. My classroom is like a,"**  
<http://wheeldeci.com/>

The screenshot shows the Wheel Builder website. On the left is a circular wheel divided into five colored segments (blue, red, yellow, green, purple) with labels like 'Hypertension', 'Diabetes', 'Asthma', 'Depression', and 'Anxiety'. On the right is a control panel with a 'Browse Wheels' section, a 'Page List' table, and an 'Apply Wheel Changes' button.

35

**January 14, 2019**  
**5. Autonomy, Choice:**  
**A. Enroll in a MOOC and Reflect**  
 (e.g., see Class Central)  
 Beer Matters: Karl Brown, Assistant Professor of History  
 Video: <http://courbook.com/beer.html> (4:11); <https://vimeo.com/286498859>  
[https://www.youtube.com/watch?time\\_continue=2&v=BkKjPOYINlA&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=2&v=BkKjPOYINlA&feature=emb_logo)  
<https://www.edx.org/course/nutrition-exercise-and-sports>

The screenshot shows the edX website. The main heading is 'Nutrition, Exercise and Sports'. Below this is a 'Play Video' button and a 'Learn More' button. The page also includes a 'About this course' section with text and a 'Sign Up' button.

36



**March 20, 2018**  
**6. Relevance, Meaningfulness:**  
**D. Editing Wikipedia Pages**  
**Women's-Studies Students Across the Nation Are Editing Wikipedia**  
 Emma Kerr, The Chronicle of Higher Education  
<http://www.chronicle.com/article/Women-s-Studies/24106>

College students take to Wikipedia to rewrite the wrongs of Internet science



**Women's-Studies Students Across the Nation Are Editing Wikipedia**

Their work is not just about correcting errors and adding missing information. It's also about changing the way the world's leading encyclopedia is written.

Under the auspices of the Wiki Education Foundation, a nonprofit that promotes digital literacy and open education, the students have taken on the task of editing Wikipedia's content on women's studies topics.

**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**

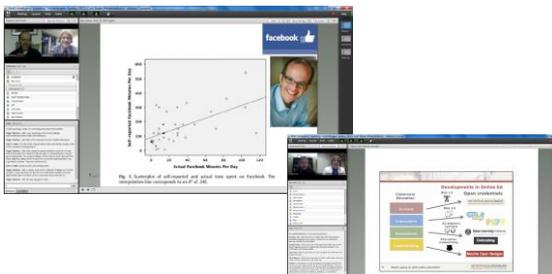
43

**7. Interactive, Collaborative:**  
**A. Negotiate Meanings Online**  
 (e.g., PiratePad: <http://meetingswords.com/>)  
<http://liberation.edu/technology/collaborative-writing-applications-for-group-projects-on-boards/>  
 MeetingWords, Google Docs, NowComment, MixedInk



44

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



45

**7. Interactive, Collaborative:**  
**C. Virtual Mobile (at Virtually Inspired)**  
 virtual laboratory brings the opportunity for remote collaboration enables students to conduct experiments, access, interpret, evaluate, and exchange relevant technical information.  
<https://virtuallyinspired.org/portfolio/online-virtual-labs/>



46

**Sept. 8 -12, 2019**  
**7. Interactive, Collaborative:**  
**D. Share knowledge and best practices**  
 AL RAYYAN MUNICIPALITY, Qatar - A New Jersey Army National Guard Soldier discusses a Tactical Combat Casualty Care (TCCC) scenario with members of the Qatari Emiri Land Forces (QELF) during a subject matter expert exchange held



47

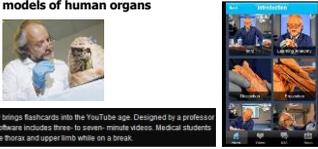
**7. Interactive, Collaborative:**  
**E. Serious Gaming**  
 A Serious Game for Massive Training and Assessment of French Soldiers Involved in Forward Combat Casualty Care.  
 Percy Military Teaching Hospital, Department of anesthesiology and intensive care, French Military Health Service, Clamart.



48

**7. Interactive, Collaborative:**  
**G. Mobile Multimedia Exam Practice**  
**Top Smartphone Apps to Improve Teaching, Research, and Your Life**  
 By Jeffrey R. Young, January 2, 2011, Chronicle of HE

Peter H. Abrahams, a professor of clinical anatomy at the University of Warwick, in England, recently released a **video reference-manual app called Aspects of Anatomy for the iPhone**. The software quizzes students by **presenting them with medical scenarios, and asks them to name the relevant body part...**It includes 38 short films of Dr. Abrahams guiding viewers through anatomical models of human organs



An app called Aspects of Anatomy brings flashcards into the YouTube app. Designed by a professor at the U. of Warwick, in Britain, the software includes three-to seven-minute videos. Medical students can, say, review a dissection of the thorax and upper limb while on a break.

49

**May 21, 2018, David Vergun, Army News Service**  
**8. Engagement, Involvement:**  
**A. Mobile App First Responder Casualty Care Simulation, Training and Instrumentation** recently prototyped a user-friendly medical app called the **Tactical Combat Casualty Care All Combatant Cognitive Trainer, or TC3 ACCT**. The new app provides a consistent, but personalized presentation of TC3 material to each learner on any mobile device



50

**Tactical Combat Casualty Care training during Exercise Mobility Guardian 2019, Sept. 12-15.**  
**8. Engagement, Involvement:**  
**B. Cross-Disciplinary Training**

'wounded' training mannequin during the Tactical Field Care phase of the Tactical Combat Casualty Care course at Fairchild Air Force Base, Washington, Sept. 12, 2019.



51

**2019**  
**8. Engagement, Involvement:**  
**C. Healthcare Scenarios and Simulations**  
**High Fidelity Simulations**  
<https://www.healthysimulation.com/high-fidelity-simulation/>  
<https://www.healthysimulation.com/birth-simulator/>

High Fidelity Simulation



Birth Simulator



High fidelity simulation is a health care education methodology that involves the use of realistic and interactive simulation environments to enhance patient care and clinical practice. From patient assessment to end-of-life care, simulation environments can be used to train healthcare professionals in a safe and controlled environment. These complex simulations are used to develop and evaluate clinical practice in high fidelity simulation environments for health care and education.

52

**January 2020**  
**8. Engagement, Involvement:**  
**D. Storytelling Strategies for the Design of Branching Virtual Patient Simulations**  
 Kira King et al., Kynectiv  
[https://253f0a53-bb62-46a2-b495-b4548f4d5d90.filesusr.com/ugd/c9b0ce\\_1a0143633f894eca955378d23c972a8.pdf](https://253f0a53-bb62-46a2-b495-b4548f4d5d90.filesusr.com/ugd/c9b0ce_1a0143633f894eca955378d23c972a8.pdf)



53

**8. Engagement, Involvement:**  
**E. Healthcare Scenarios and Simulations**



54

### 8. Engagement, Involvement: F. Interactive Labs and Simulations

<http://phet.colorado.edu/en/simulation/energy-skate-park>

55

### 8. Engagement, Involvement: G. Interactive Timelines

(Dipity, xtimeline, Simile, TimeLineCurator, etc.)

56

### July 23, 2019

### 8. Engagement, Involvement: I. Explore Historical and Cultural Sites

#### Four World Heritage Sites in VR With MasterWorks

Sara Hardman, New Learning Times

<https://newlearningtimes.com/articles/6385/explore-four-world-heritage-sites-in-vr-with-masterworks>

57

### May 28, 2019

### 8. Engagement, Involvement: J. Virtual Reality Comes to the Classroom

#### Beth McMurtrie, The Chronicle of Higher Education

<https://www.chronicle.com/interactives/20190528-immersiveTech>

58

### 9. Tension, Challenge, Controversy, etc.: A. Controversial Issue Debates

#### Pros & Cons: Universal Healthcare

59

### 9. Tension, Challenge, Controversy, etc.: B. Embodied VR Experiences

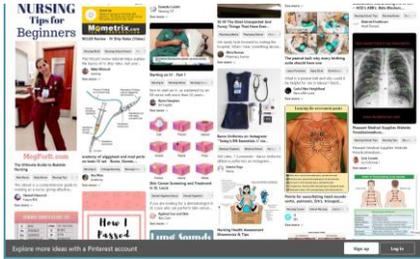
<https://embodiedlabs.com/labs> One example is pasted below.

#### Topic: End of Life Conversations

Summary: The learner will embody Clay Crowder, a 66-year old veteran with stage IV, incurable lung cancer. Learning Outcomes: Experience what it is like to receive "bad news" from your doctor, and discuss your options. Have conversations with your family and members of the healthcare team about transitioning to hospice care. Get assistance from the hospice care team in understanding your symptoms and conflicts that may occur within your family. See the physical changes inside your body as it nears the end of life. Experience what may happen at the end of your life.

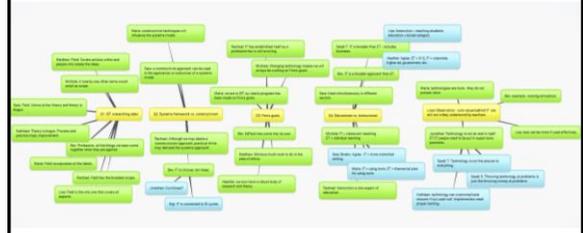
60

**10. Yields Products, Goals:**  
**A. Database Collection Tools**  
 Article Databases in Pinterest



61

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



62

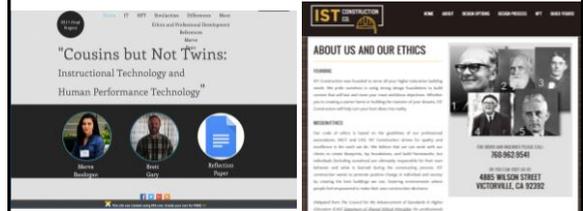
**10. Yields Products, Goals:**  
**C. Goal Setting Tools**  
 (e.g., I Done This, Milestone Planner, and 43 Things)



63

**10. Yields Products, Goals:**  
**D. Student Website Development**  
 R511 Final Projects, December 12, 2017

"IST Construction, Co."  
 Rob Elliot, Patrick Walsh, Erin Milanesse, 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>



64

**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**

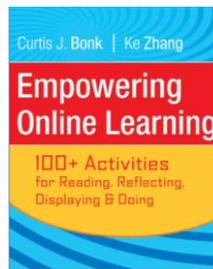
What motivates?

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



65

**Part II: The R2D2 Model:**  
**Read, Reflect, Display, Do...**



66

**Question: How can technology address diverse learner needs?**



67

**The R2D2 Model**

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



68

**1. Auditory or Verbal Learners**

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



69

**Read 1a. Choose from Online Tidbits Holistic Health and Fitness**

[https://www.army.mil/article/191602/army\\_launches\\_holistic\\_health\\_and\\_fitness\\_initiative](https://www.army.mil/article/191602/army_launches_holistic_health_and_fitness_initiative)



Army launches holistic health and fitness initiative

By Stephen Lee - 10/13/2019



**RELATED STORIES**

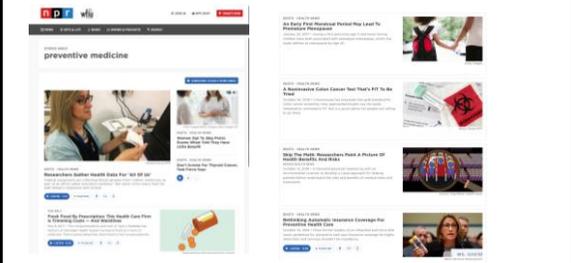
- 10/13/2019 Policy update on holistic health care
- 10/13/2019 Challenge health care system
- 10/13/2019 Military's new health & fitness strategy
- 10/13/2019 Finding solutions, building healthy, resilient Army
- 10/13/2019 Military's new health & fitness strategy

70

**January 20, 2016**  
**Read 1b. Listen to Podcasts**

(e.g., preventive medicine podcast, NPR:

<https://www.npr.org/tags/206695374/preventive-medicine>)



71

**January 23, 2019**  
**Read 1c. Listen to News Podcasts**

How dangerous is the Coronavirus?

Podcast, Sky News, UK

<https://news.sky.com/story/coronavirus-uk-made-plague-game-downloads-soar-in-china-amid-virus-outbreak-11915754>

Whole podcast: <http://cutrbonk.com/coronapodcast.html>

First 2 minutes of video: <http://cutrbonk.com/corona-2min.html>

First 2 minutes of podcast: <http://cutrbonk.com/coronapodcast-2min.html>



72

**January 25, 2020**  
**Ethan Klein On Corona Virus Outbreak**  
**H3 Podcast Highlights**  
<https://www.youtube.com/watch?v=AgZ5ao7lbn0>

73

**Read 1d. Twitter Fed Class Discussions**  
 (e.g., OT:  
<https://twitter.com/glenbourneteam>)

74

**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

75

**February 24, 2019**  
**Reflect 2a. 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/syllabus/>  
[https://www.youtube.com/watch?time\\_continue=104&v=EMKbtSC3-2I](https://www.youtube.com/watch?time_continue=104&v=EMKbtSC3-2I)

76

**April 13, 2016**  
**Reflect 2b. 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/2014/04/13/tech-billionaire-cancer-immunotherapy-funding/32821198/>

77

**July 5, 2018**  
**Reflect 2c. 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>

78

**October 24, 2018**  
**Reflect 2d. 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\\_0o6CX6Pa1vNt\\_nDq72EgDyksiwaM\\_Q8U9WMdUq4slwjiDa0\\_D9qll](https://blog.learnlets.com/2018/10/emerging-online-learning-tools-research-session-mindmap/?fbclid=IwAR11_0o6CX6Pa1vNt_nDq72EgDyksiwaM_Q8U9WMdUq4slwjiDa0_D9qll)

79

**2019**  
**Reflect 2e. Student Life Advice**  
**Cases**  
**British Medical Association (BMA)**  
<https://www.bma.org.uk/features/masteringmedicalschool/>

Twisha - 4th Year medical school student

Listen to real life advice from fellow students, read our top tips on budgeting, and find out how we can help you to make the most of your time at medical school.

80

**3. Visual Learners**

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

81

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

82

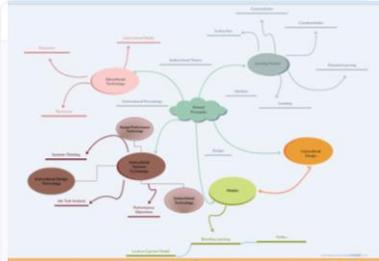
**Display 3b.**  
**Short Educational Videos:**  
**Anchored Instruction/Macrocontext**  
**CNN, BBC, TED, TED-Ed, ForaTV**

83

**Display 3c.**  
**Medical Training Videos:**  
**Anchored Instruction/Macrocontext**  
**MEDtube (200,000 users, 20,000 records)**

84

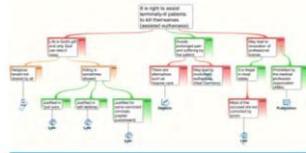
**Display 3d.**  
**Concept Mapping and Timeline Tools**  
 (Bubbl.us, Cmap, Glify, Spicynodes, or Mindomo)  
<http://www.spicynodes.org/index.html>



85

**Summer 2011**  
**Teaching Critical Thinking**  
**Optometric Education, 36(3)**  
[https://journal.opted.org/articles/Volume\\_36\\_Number\\_3\\_Summer\\_2011.pdf](https://journal.opted.org/articles/Volume_36_Number_3_Summer_2011.pdf)

**Figure 6**  
 Argument map regarding assisted euthanasia developed in an ethics course with @Stationale software. Software used with permission.



**Figure 3**  
 A modified online essay writing @Mind Manager software incorporating an epistemological process. During the essay writing activity, the critical thinking experiences developed during the case history, the consultation findings, conferring or writing out the diagnosis, and the treatment and management of the case. It summarizes the clinical decision process during the systematic examination. Used with permission.



131 *Optometry Education, Volume 36, Number 3 / Summer 2011*

86

**June 3, 2016**  
**Display 3e. Explosion of Virtual Reality**  
**VR Lets Med Students Experience What**  
**It's Like To Be 74**  
 Elyse Wanshel, Huffington Post  
<http://ht.ly/bSpe300XEPJ>

Virtual Reality Lets Med Students Experience What It's Like To Be 74



87

**February 6, 2020**  
**Display 3f. Training Videos and Podcast**  
**for Medic Training (TCCC training--Tactical Combat**  
**Casualty Care or TCC3; videos, video tutorials, podcasts, apps.)**  
<https://www.deployedmedicine.com/market/11/category/6>

88

**January 20, 2017**  
**Display 3g. You VR Takes You on a Tour of**  
**The Human Body**  
[https://www.youtube.com/watch?v=LBWajif\\_UjM](https://www.youtube.com/watch?v=LBWajif_UjM)



89

**Display 3h. Multimedia Supplements**  
**Online Anatomy and Biology**  
<http://www.cyber-anatomy.com/>  
<https://www.biodigital.com/>

90

## 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.



91

## Do 4a. Hands-on Military Decision Making Simulated Natural Disaster Field Training Exercise Captains Career Course

<https://www.dvidshub.net/image/5343668/captains-career-course>



92

## Do 4b. Case Decision Making e.g., snake bite



93

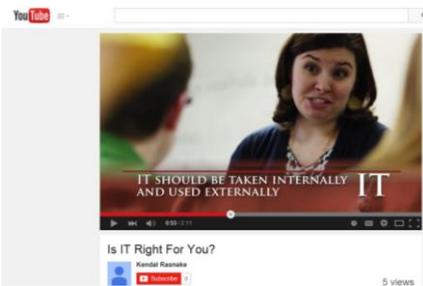
## Do 4c. Sample Student Work e.g., Interactive Archive/Gallery of best work (e.g., physical therapy, SDSU)



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## Do 4d. Student Created Recap Videos

Piercarlo Abate: <http://www.youtube.com/watch?v=-TURzH06aU>  
 Qi Li, Gangnam: <http://www.youtube.com/watch?v=z7Qz20yZaU8&feature=youtu.be>  
 Miguel Lara (Web 2.0 FREEDOM): <http://www.youtube.com/watch?v=8cmCFW9I9W8>  
 Kendal Rasnake (Is IT Right For You?): <https://www.youtube.com/watch?v=MJ3GUD1CIGw>  
 Kimberly Vincent-Caplan: [https://www.youtube.com/watch?v=6C2P\\_9T128&feature=youtu.be](https://www.youtube.com/watch?v=6C2P_9T128&feature=youtu.be)



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## January 26, 2020 Do 4e. Medical Service Learning and Community Outreach Global Health Education, Indiana University

<https://medicine.iu.edu/expertise/global-health/education/>



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**Poll: 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**

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




**What motivates?**

1. Tone/Climate: Psychological Safety, Comfort, Sense of Belonging
2. Encouragement: Feedback, Reassurances, Praise, Support
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

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**Poll: Excited or does all this give you a headache?**




99



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



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**Any Questions or Comments?**

Slides at: [TrainingShare.com](http://TrainingShare.com)  
 Papers: [PublicationShare.com](http://PublicationShare.com)  
 Free book: <http://tec-variety.com/>  
 Dr. Curt Bonk – [CJBonk@Indiana.edu](mailto:CJBonk@Indiana.edu)  
<http://curtbonk.com/>




**MAKE IT SO**

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