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

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Poll: What did Jean-Luc Picard say?

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

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

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, advance organizers.
10. Make content personal, concrete, familiar.
**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).

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:
C. 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:

D. Instructor Course Introductions

Lynne Innes (Scotland): https://vimeo.com/356645285

2. Encouragement, Feedback:

A. Poll Everywhere, BlogPoll, MicroPoll

Connect students across campuses (School of Medicine, Flinders University)

2. Encouragement, Feedback:

B. Voice/Audio Feedback

Vocaroo: http://vocaroo.com/

2. Encouragement, Feedback:

C. Home workout: Companies like Peloton, Mirror, FightCamp push remote fitness forward

Davin Brown, The USA Today


3. Curiosity, Intrigue, Unknowns:

A. How dangerous is the Coronavirus?

Podcast, Sky News, UK


Whole podcast: http://outbook.com/curonapodcast.html
First 2 minutes of video: http://outbook.com/erourm-2min.html
First 2 minutes of podcast: http://outbook.com/curonapodcast-2min.html

3. Curiosity, Intrigue, Unknowns:

B. Outbreak Trailer

https://www.youtube.com/watch?v=AgZ5goJibn0

May 19, 2011

January 23, 2020

February 11, 2020
May 22, 2019

3. Curiosity, Intrigue, Unknowns:
C. This Japanese secret to a longer and happier life is gaining attention from millions around the world
Klen Mogi, CNBC

April 17, 2017

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

January 7, 2016

3. Curiosity, Intrigue, Unknowns:
F. Google Cardboard saves baby's life
CNN, Elizabeth Cohen
http://www.cnn.com/2016/01/07/health/google-cardboard-baby-saved/index.html

November 19, 2015

3. Curiosity, Intrigue, Unknowns:
G. New Discoveries in Science...
New daddy longlegs named after 'Lord of the Rings' character Smeagol, Mary Bowerman, USA Today

January 9, 2020

3. Curiosity, Intrigue, Unknowns:
H. Scientists put 3D glasses on cuttlefish and showed them film clips. The results were surprising
Ryan Prior, CNN
https://www.cnn.com/2016/01/07/health/google-cardboard-baby-saved/index.html
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/

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

February 21, 2017
4. Variety, Novelty, Fun, Fantasy:
E. My classroom is like a,”
http://wheeldecide.com/

January 14, 2019
5. Autonomy, Choice:
A. Enroll in a MOOC and Reflect
(e.g., see Class Central)
http://classcentral.com
http://curtbonk.com/beer.html
https://vimeo.com/286408659
https://www.youtube.com/watch?time_continue=72&v=8kKjPoYINLA&feature=emb_logo
https://www.edx.org/course/nutrition-exercise-and-sports
5. Autonomy, Choice:
B. Tracking the Life of a Medical Professional
(e.g., biography.com)
https://www.biography.com/scientist/alexander-fleming

Poll:
Any light bulbs going off in your head so far...?
A. Yes definitely***  
B. Yes maybe!  
C. Not yet (but hopefully soon...)

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

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/

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

May 11, 2018
6. Relevance, Meaningfulness:
C. Lab Discoveries
Meaningful Learning: Importance in Medical Education
shiftkiya.com
https://shiftkiya.com/meaningful-learning-importance-medical-education/
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

7. Interactive, Collaborative:
A. Negotiate Meanings Online
(e.g., PiratePad: http://meetingwords.com/)
MeetingWords, Google Docs, NowComment, MixedInk

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

7. Interactive, Collaborative:
C. Virtual Mobile (at Virtually Inspired)

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

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.
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.

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.

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.

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/

8. Engagement, Involvement:  
D. Storytelling Strategies for the Design of Branching Virtual Patient Simulations  

Kira King et al., Kynectiv  
https://253f0a53-bb62-46af-b495-b4548f4d5d90.filesusr.com/ugd/c9b0ce_1a0143633f894eca965378d23c9b72a4.pdf

January 2020  
8. Engagement, Involvement:  
E. Healthcare Scenarios and Simulations
8. Engagement, Involvement:
F. Interactive Labs and Simulations
http://phet.colorado.edu/en/simulation/energy-skate-park

7. Tension, Challenge, Controversy, etc.:
A. Controversial Issue Debates
Pros:
- Ensures healthy people don’t go to the hospital
- Sures hospitals properly allocate the costs of care
- Eliminates administrative costs by eliminating waste in the healthcare system
- Most universal health systems report long wait times for elective procedures

Cons:
- Ensures unhealthy people don’t go to the hospital
- Sures hospitals properly allocate the costs of care
- Eliminates administrative costs by eliminating waste in the healthcare system
- Most universal health systems report long wait times for elective procedures

8. Engagement, Involvement:
G. Interactive Timelines
(Dipity, xtimeline, Simile, TimeLineCurator, etc.)

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

Using a special recording system, Hamilton College created a virtual-reality experience for students in a conducting class. Heather Buchman, a music professor, first recorded a performance using 3-D audio and video. (Andrew Groll)

Students later practiced conducting the virtual orchestra by wearing a special headset through which the sound of the orchestra changes as they turn their head. (Ben Salzman)

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

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 experience Clay Crowder, a 66-year-old veteran with stage IV, incurable lung cancer. Learning Objectives: Experience the final moments of life, collaborate with a team of experts, and discuss their options. Have conversations with your family and members of the healthcare team about transitioning to hospice care. Get assistance from the learner care team in understanding your symptoms and challenges that may occur within your family. Explore what your end of life experience will look like. 
10. Yields Products, Goals: A. Database Collection Tools
   Article Databases in Pinterest

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

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

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

   http://educbasdogan.wixsite.com/511final

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

Part II: 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.

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

Army launches holistic health and fitness initiative

Read 1b. Listen to Podcasts
(e.g., preventive medicine podcast, NPR: https://www.npr.org/tags/206695374/preventive-medicine)

January 20, 2016
Read 1b. Listen to Podcasts

January 23, 2019
Read 1c. Listen to News Podcasts
How dangerous is the Coronavirus?
Podcast, Sky News, UK
Whole podcast: http://curtbonk.com/coronapodcast.html
First 2 minutes of video: http://curtbonk.com/coronavideo.html
First 2 minutes of podcast: http://curtbonk.com/coronapodcast-2min.html
January 25, 2020
Ethan Klein On Corona Virus Outbreak
H3 Podcast Highlights
https://www.youtube.com/watch?v=AgZ5goJibn0

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/
https://godandgoodlife.nd.edu/syllabus/
https://www.youtube.com/watch?time_continue=104&v=EMKbtSC32I

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

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
3. Visual Learners

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

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

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

Display 3c. Medical Training Videos: Anchored Instruction/Macrocontext
MEDtube (200,000 users, 20,000 records)
Display 3d. Concept Mapping and Timeline Tools (Bubbl.us, Cmap, Gliffy, Spicynodes, or Mindomo)
http://www.spicynodes.org/index.html

Summer 2011
Teaching Critical Thinking Optometric Education, 36(3)
https://journal.opted.org/articles/Volume_36_Number_3_Summer_2011.pdf

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

February 6, 2020
Display 3f. Training Videos and Podcast for Medic Training (TCCC training--Tactical Combat Casualty Care or TC3; videos, video tutorials, podcasts, apps.)
https://www.deployedmedicine.com/market/11/category/6

Display 3g. You VR Takes You on a Tour of The Human Body
https://www.youtube.com/watch?v=LBWaj1f_UjM

January 20, 2017
Display 3h. Multimedia Supplements Online Anatomy and Biology
http://www.cyber-anatomy.com/
https://www.biodigital.com/
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. Hands-on Military Decision Making
Simulated Natural Disaster Field Training Exercise
Captains Career Course
https://www.dvidshub.net/image/5343668/captains-career-course

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

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

Do 4d. Student Created Recap Videos

Janurary 26, 2020
Do 4e. Medical Service Learning and Community Outreach
Global Health Education, Indiana University
https://medicine.iu.edu/expertise/global-health/education/
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.

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

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

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/
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http://curtbonk.com/