Active Learning with Technology: Myths, Magic, and Mucho Motivation

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Where are we headed?

Technology of the 1980s

Radio Shack TRS-80 Model III

Today we have the Web 2.0

So many technology choices...
New interfaces are coming!

And better search technology...
(timeline oriented)

But will more learning be virtual?

Will we become increasingly mobile learners?

Of course, there will always be smaller and cheaper Devices...
Will expert advice (and happiness) be a button away? (e.g., Live Happy Practitioner Directory)

Mobile Learning and Blended Learning Exploding
College tech 'catching up' with students
Kathleen Gray & Robin Erb, USA TODAY, Oct 6, 2009

- At Abilene Christian (University)...about 2,800 students and 70% of the 250 professors use the Apple technology for instructional purposes.
  - Art students use app to draft sketch and send it to the teacher and other students for advice before starting the real art pieces.
  - A drama teacher takes video of the lead dancer in a production and sends that along to other students for rehearsal.

Seton Hill University, 2,100 students. All fulltime students get an iPad and Incoming freshmen will also receive a 13-inch MacBook laptop, April 2010.

An iPad for Everyone

Will university life be a continual stream?

Will the academic world be the clouds...?
And what is expertise? What is scholarship?

Poll #1: Who finds it hard to keep track of all the technology-related changes today???

Poll #2: Who is frustrated sometimes???

Poll #3: Bonk’s Web Addiction Questionnaire

1. Who has 2 or more cell phones with Internet access?
2. Who has 2 or more laptop computers with wireless connections?
3. Who is on email in the morning? At noon? Who does it at night?
4. Who suffers from nervous tension when you cannot get on email?
5. Who is on the Web right now?
Old Models of Interactivity

Part I. Some Online Motivational Ideas

We are not motivating students with the technologies that they love

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

Active Learning Principles
1. Authentic/Raw Data
2. Student Autonomy/Inquiry
3. Relevant/ Meaningful/ Interests
4. Link to Prior Knowledge
5. Choice and Challenge
6. Teacher as Facilitator and Co-Learner
7. Social Interaction and Dialogue
8. Problem-Based & Student Gen Learning
9. Multiple Viewpoints/ Perspectives
10. Collab, Negotiation, & Reflection
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.

Intrinsic Motivation
"...inherent 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)

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

Magic #1: TEC-VARIETY Model for Online Motivation and Retention
1. Tone/Climate: Psych Safety, Comfort, Belonging
2. Encouragement, Feedback: Responsive, Supports
3. Curiosity: Fun, Fantasy, Control
4. Variety: Novelty, Intrigue, Unknowns
5. Autonomy: Choice: Flexibility, Opportunities
6. Relevance: Meaningful, Authentic, Interesting
7. Interactive: Collaborative, Team-Based, Community
8. Engagement: Effort, Involvement, Excitement
9. Tension: Challenge, Dissonance, Controversy
10. Yields Products: Goal Driven, Products, Success, Ownership

1. Tone/Climate: Social Ice Breakers
A. Public Commitments: Have students share how they will fit the coursework into their busy schedules
B. Favorite Websites
1. Everyone posts 1-2 of their favorite Websites and explain why.
2. Peers comment on or rate them.
1. **Tone/Climate:** C. Video Course Intros (examples from Northern Virginia Community College and Indiana University KD (online MBA) program)

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

2. **Encouragement, Feedback, etc.:**
   B. Tutorials with Screen Capture (e.g., Jing, Screenr)

2. **Encouragement, Feedback, etc.:**
   C. Instructor Presentation in Synchronous Sessions (Breeze/Adobe Connect Pro, Elluminate, WebEx, Dim Dim)

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

3. **Curiosity, Fun:**
   B. Online Games (e.g., public health; the POD game Points-of-Dispensing (PODs))
3. Curiosity, Fun: C. WolframAlpha
(access knowledge)

http://www.wolframalpha.com/

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WolframAlpha
http://www.wolframalpha.com/

"Wolfram\textregistered\ Alpha\textregistered\'s long-term goal is to make all
systematic knowledge immediately computable
and accessible to everyone. We aim to collect and
curate all objective data; implement every known
model, method, and algorithm; and make it
possible to compute whatever can be computed
about anything. Our goal is to build on the
achievements of science and other
systematizations of knowledge to provide a single
source that can be relied on by everyone for
definitive answers to factual queries."
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4. Variety, Novelty:  
A. Cool Resource Provider or Tech Demos.MM

- Have students sign up to be a cool resource
  provider once during the semester.
- Have them find additional paper, people,
electronic resources, etc.
- Share and explain what found with class.

4. Variety, Novelty:  
B. Expert Chats

1. Agree to a weekly chat time.
2. Bring in expert for discussion or post
discussion topics or issues.
3. Summarize or debrief on chat
discussion.

4. Variety, Novelty:  
C. Synchronous Session with Guest Expert.MM

Arlington Racetrack
Jockey's are Important

5. Autonomy, Choice:
   A. Online Literature Search (Class Google Jockeys)
      (links to text, soundtracks, video clips, etc.)

5. Autonomy, Choice:
   B. Famous Person Web Explorations, Searches, Twitter Tracking, and Interviews
      (e.g., Thomas Friedman, NY Times reporter)

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

5. Autonomy, Choice:
   D. Explore Online Museums, Zoos, Library Exhibits

6. Relevance, Meaningfulness:
   A. 60 Second Recap, Jenny Sawyer
      http://www.60secondrecap.com/
      Actress to students: Land me your earbuds!
      English major, 24, rambunctiously recaps the classics in 60-second Web videos; By Greg Toppen; USA TODAY, September 2009

2: the plot, part 1
6. Relevance, Meaningfulness:
B. Online Simulations and Demonstrations
(e.g., self study in anatomy or chemistry, virtual autopsy, dissection, etc.)

7. Interactive, Collaborative:
A. Online Language Learning
(ECpod, Mixter, Livemocha, Babbel, KanTalk)

7. Interactive, Collaborative:
B. Collaborative Groups (Ning, Google Groups, MSN Groups, Yahoo Groups)

7. Interactive, Collaborative:
C. Collaborative Research and Bookmarking (Diigo, Delicious)

7. Interactive, Collaborative:
D. Collaborative Documents (Google Docs)

8. Engagement, Effort:
A. Synchronous Learning
8. Engagement, Effort:
B. Synchronous and Asynchronous Events
(e.g., Breeze + Video + Online Forum + Online Papers) ...MM

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

8. Engagement, Effort:
D. Follow Online Adventure
Australian adventurer Don McIntyre and teenage circumnavigator Mike Pembury to re-enact Capt Williams Bligh's epic mutiny on the Bounty open boat voyage

9. Tension, Challenge, etc.:
A. Ethical Medical Debates
Students to protest human body exhibit

9. Tension, Challenge, etc.:
B. Electronic Guests & Mentoring ...MM

10. Yields Products, Goals:
A. Student YouTube Products ...MM
http://www.youtube.com/watch?v=3JlydPy_E
http://www.youtube.com/watch?v=31w0asZlP0

6/26/2010
10. Yields Products, Goals: B. Video Blogs...MM

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

Poll #1: How many ideas did you get so far?
1. 0 if I am lucky.
2. Just 1.
3. 2, yes, 2...just 2!
4. Do I hear 3? 3!!!
5. 4-5.
6. 5-10.

II. Addressing Diverse Learners

99 seconds: What have you learned so far?
- Solid and Fuzzy in groups of two to four
1. Auditory or Verbal Learners

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

The R2D2 Method

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

Read 1a. Course Announcements (e.g., Teaching with Twitter)

Read 1b. Podcast Paper Reflections

Read 1c. Podcasting Medical Lectures (School of Dentistry, Univ of Michigan)
Read 1d. Wikihow: Wiki Steps on How to do Something
http://www.wikihow.com/

Reflect 2a. Critical Friend Blog Postings...MM

Reflect 2b. Expert and Domain Specific Blogs (English, Health, Business, etc. blogs)

Reflect 2c. Analyze Online Cases (problems, solutions, etc.) ...MM

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

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
3. Visual Learners

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

Display 3a. Pubcasts! (videos of scientific papers and science)
NSF, the Public Library of Science, and the San Diego Supercomputer Center created a YouTube for scientists to help demystify important research papers. See ScVee.

Display 3b. Anchored Instruction Discussions (YouTube, CNN, BBC, TeacherTube, CurrentTV)
- In a synchronous lecture interrupt it with a summary video (could be a movie clip) explaining a key principle or concept.
- Refer back to that video during lecture.
- Debrief on effectiveness of it.

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

Display 3d. World Trends and Indices (e.g. Worldmapper)
Display 3e. United Nations World Digital Library
https://www.undl.org/en/

Display 3f. Shared Online Video
(e.g., Howcast, WonderHowTo, Clip Chef, Link TV, Fora TV, etc.)

Display 3g. Online Historical Docs
(e.g., Turning The Pages, British Library)

Display 3h. Medical Animations and Videos
(e.g., YouTube, CNN, BBC)

Display 3i. Online Timelines
(e.g., US Presidents, Univ of North Texas)

Display 3j. Videos of the Periodic Table
Display 3k. Online History Portals and Resources (Civil Rights Digital Library and Amistad)

Display 3l. Human Embryology Animations (Valerie O'Loughlin, Indiana Univ.)

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

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. Wikibooks: International Collaboration (Web 2.0 and Emerging Learning Technologies (The WELT)) ...

Today's Campus, May/June 2010
“Wikipedia, the open encyclopedia, attracts 68 million visitors monthly, and 91,000 active contributors are working on 15,000,000 articles in 270 languages. Three million plus articles are in English.”
Do 4b. Survey Research and Market Analysis (e.g., Mister Poll, MicroPoll, Zoomerang, SurveyShare)

Do 4c. Online Warm-ups Activities Just-In-Time-Teaching (JiTT)

Do 4d. Syllabus, Glossary, etc. in wiki: Students sign up for tasks (Ron Owston, York University) ... MM

Do 4e. Virtual World and Podcast Reenactments

Do 4f. Medical Simulations in YouTube and Second Life

Poll #2: How many ideas did you get from the second part of this talk?

a. None—you are an idiot.
b. 1 (and it is a lonely #).
c. 2 (It can be as bad as one).
d. 3-5
e. 6-10
f. Higher than I can count!
Next up: The MATRIX!

- Mobile
- Auditory
- Thought-stimulating
- Reflective/Real-World
- Visually Interactive
- Extremely Hands-on

99 Seconds Stop and Share: Top Three Things Learned today!

Try the R2D2 Method!
Try TEC-VARIETY!
And hope for some magic!!!

Sample papers:
http://www.publicationshare.com/
Archived talks:
http://www.trainingshare.com/