Rigorous Learning with Technology: Elementary Edition

Kristin Fontichiaro, University of Michigan School of Information
Slides: bit.ly/fontblog ~ font@umich.edu ~ @activelearning
AIMS ~ OCTOBER 7, 2013 ~ 8:35 – 10:05AM ~ROEPER

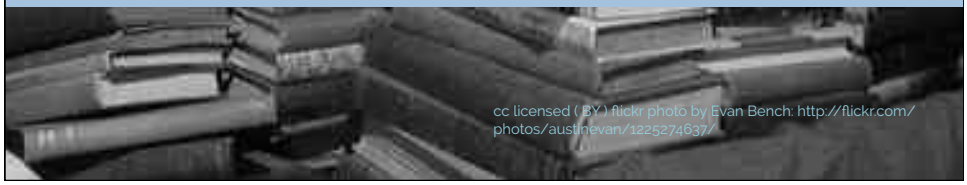
"connecting people, information, and technology in more valuable ways"

Today's Road Map

- **An Unfocused Lens:** The Dizzying Choices
- **Refocusing Our Lens:** What Do We Mean by Rigor?
- **Testing Our Lens:** Student Work Samples

What does it mean to be literate today? (Said differently: what skills do you need to navigate the physical and virtual worlds?)

http://todaysmeet.com/aims



cc licensed (BY) flickr photo by Evan Bench: http://flickr.com/photos/austinevan/1225274637/

We have been in the ed tech business for a lonnnnnng time.
"Rhombic Dodecareuleaux Calendar 2013" by Philip Chapman
CC-BY-NC-SA. http://flickr.com/photos/oschene/833427757

$100,000
NAME
THAT
TECH

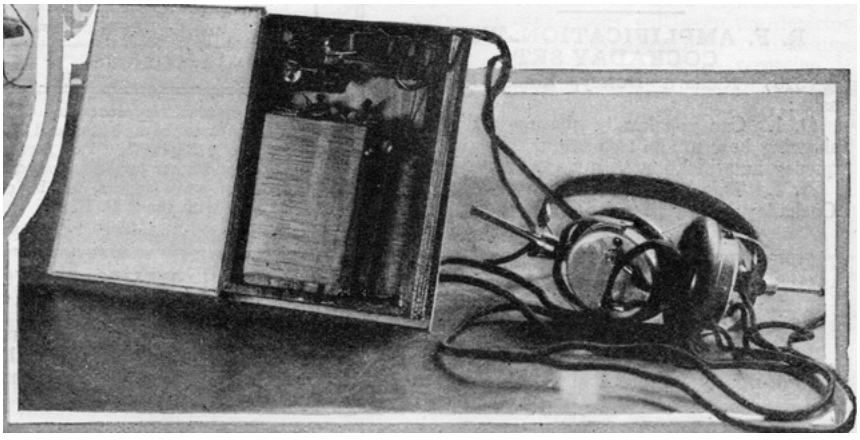
Any guesses?

"With the everyday added perfections in the transmission and reception… Mary … will enjoy her … lessons as much as she now enjoys her bedtime stories. Everything will be an "open book" to her. [It] will take the place of bulky primers and readers. Home work will now be a great joy … and lessons will be learned with much greater facility."

"Zur lieben Erinnerung an deinen lieben freund Kurt Burkhardt, im kriegsjahre 1918" from Drake Goodman's Flickr Stream. Public Domain.

The Game-Changing Technology!

Close-Up!



Text and images from: http://paleofuture.gizmodo.com/this-radio-book-was-the-future-of-education-509067457 used under Fair Use exem

"Day 212, July 30th: Lego army" by Katy Stoddard on Flickr. CC-BY-NC-SA. http://flickr.com/photos/katy_bird/7680292828/
Please stand – and stay standing – if you have used the following technologies in your classroom.

http://www.digibarn.com/collections/systems/apple-bell-and-howell/CIMG2740.JPG

Image: 'hardcore gaming at the office'
http://www.flickr.com/photos/35448539@N00/5229554976
Lemonade
COPYRIGHT 1979 APPLE COMPUTER INC.

Macintosh Classic
http://bebetoocool.files.wordpress.com/2010/06/

AMERICA Online

http://upload.wikimedia.org/wikipedia/commons/e/e7/

TURN AND TALK:

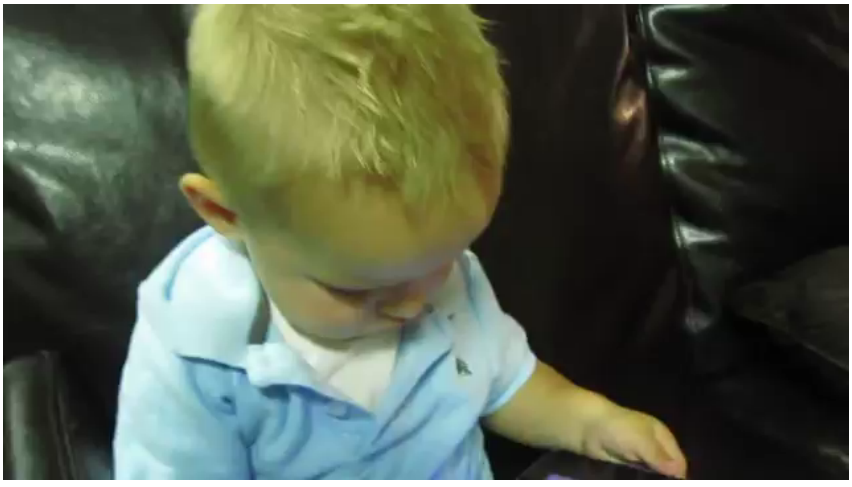
How have past technology initiatives improved student learning?

What made them succeed?

Where have we fallen short?

Scribe at http://todaysmeet.com/aims

http://bit.ly/bridger-ipad



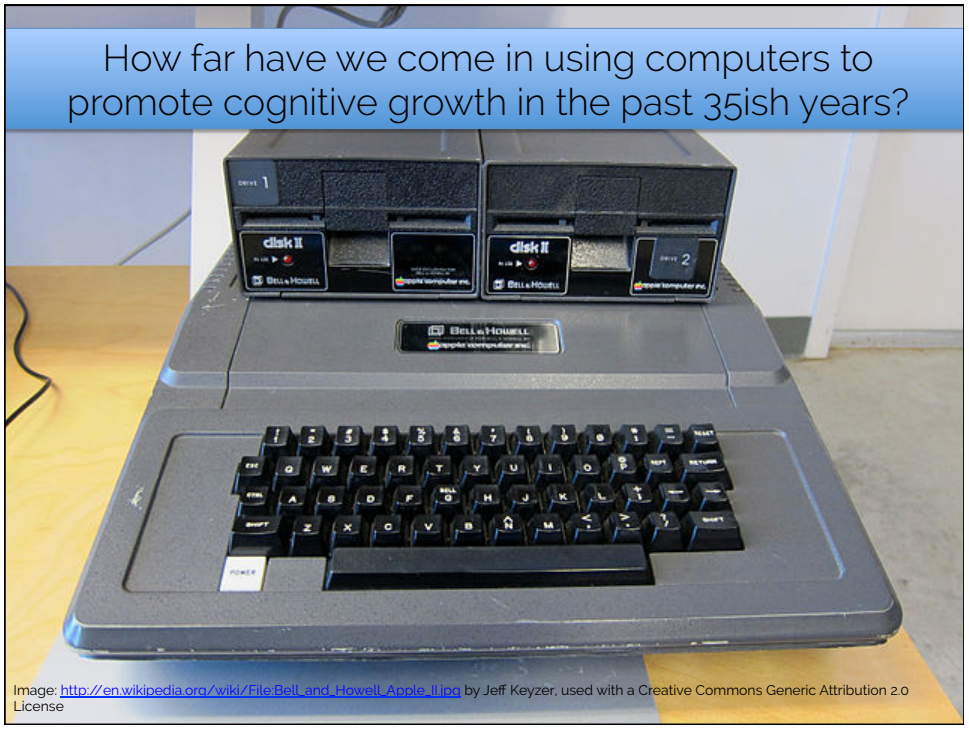
TURN AND TALK!

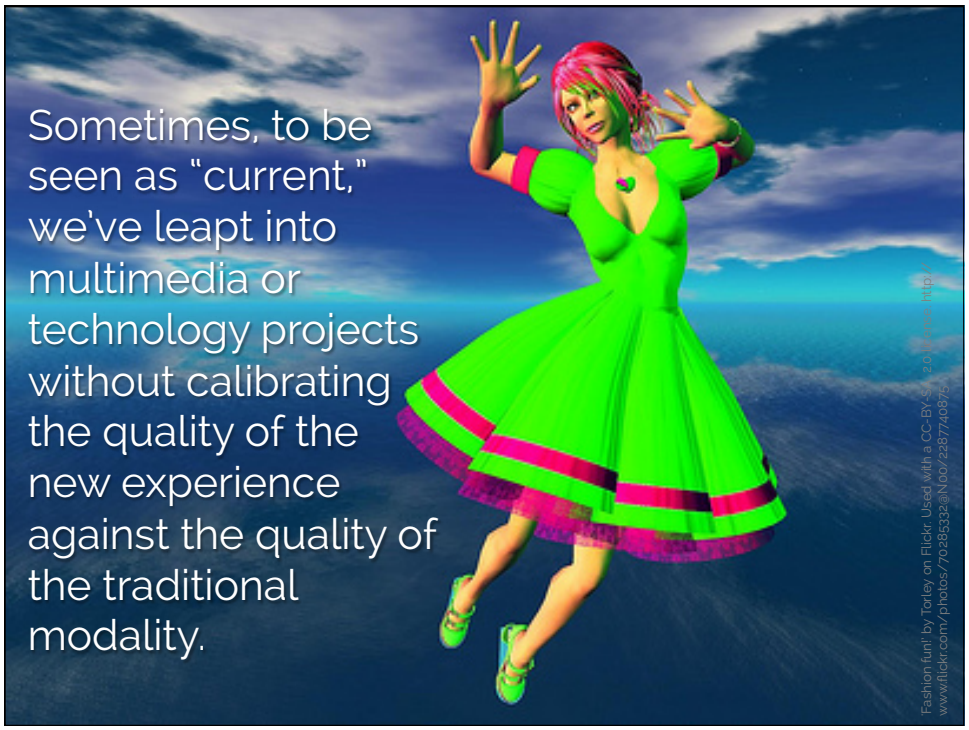
If a two year-old can use an iPad, what are the implications for our work?

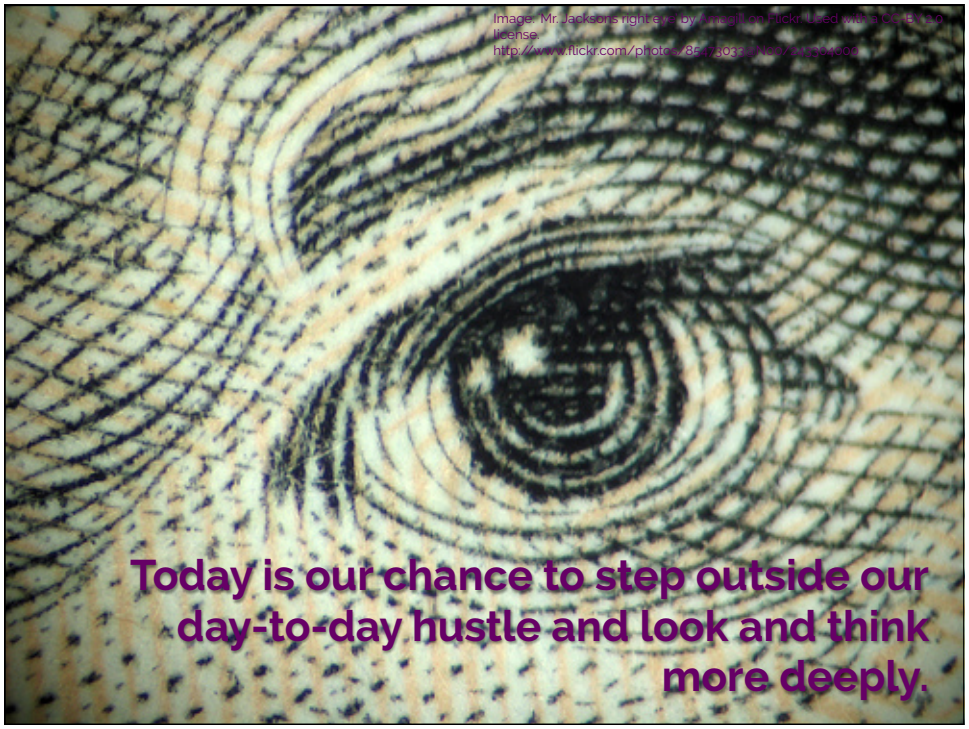
Image: 'whoa' http://www.flickr.com/photos/54021469@N00/653976303

SHARE OUT!

Image: 'whoa' http://www.flickr.com/photos/54021469@N00/653976303


How far have we come in using computers to promote cognitive growth in the past 35ish years?
Image: http://en.wikipedia.org/wiki/File:Bell_and_Howell_Apple_II.jpg by Jeff Keyzer, used with a Creative Commons Generic Attribution 2.0 License


Sometimes, to be seen as "current," we've leapt into multimedia or technology projects without calibrating the quality of the new experience against the quality of the traditional modality.
'Fashion fun!' by Torley on Flickr. Used with a CC-BY-SA 2.0 license. http://www.flickr.com/photos/70285332@N00/2287740875/



TWO COMMON OBSERVATIONS

FANCY NANCY syndrome:

Students make minimal cognitive investment and plug a few trivial infobits into a Web 2.0 tool. They are lauded for their "creativity" … even though the software engineer did the hard work, not the student.

E-EFFORT syndrome:

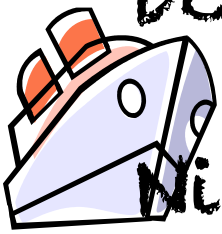
Students make minimal cognitive investment and plug a few trivial infobits into a tool where they do a lot of the aesthetic construction.

Christopher Columbus was born in 1461.

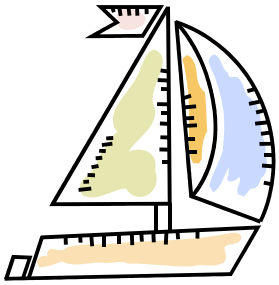
HE WAS BORN IN ITALY.

HOME OF PIZZA!!!!!!! YUM!!!!

He had three boats:



Nina



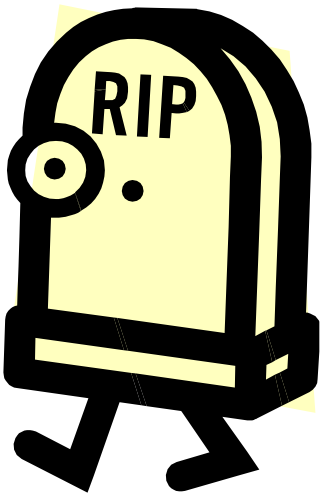
Pinta

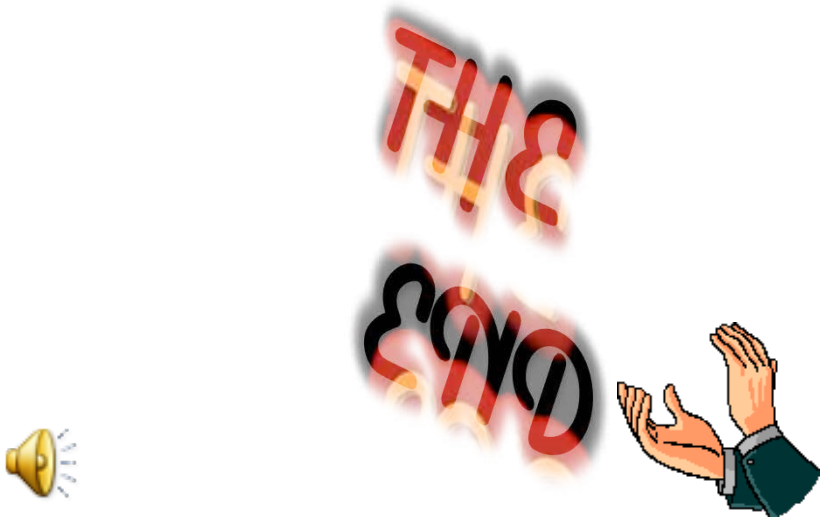
Santa Maria

He discovered AMERICA!!!

He died in 1506.

It was sad.





What are students gaining from this experience?

Image: 'Question mark made of puzzle pieces' http://www.flickr.com/photos/10361931@N06/4273168957

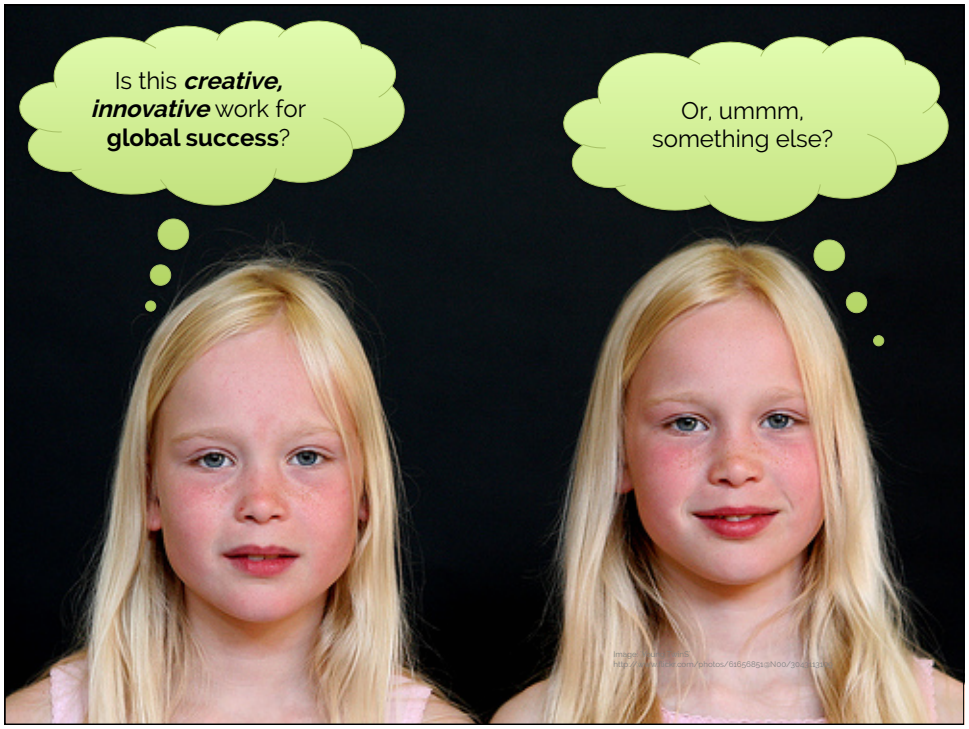
WHERE'S THE LEARNING?

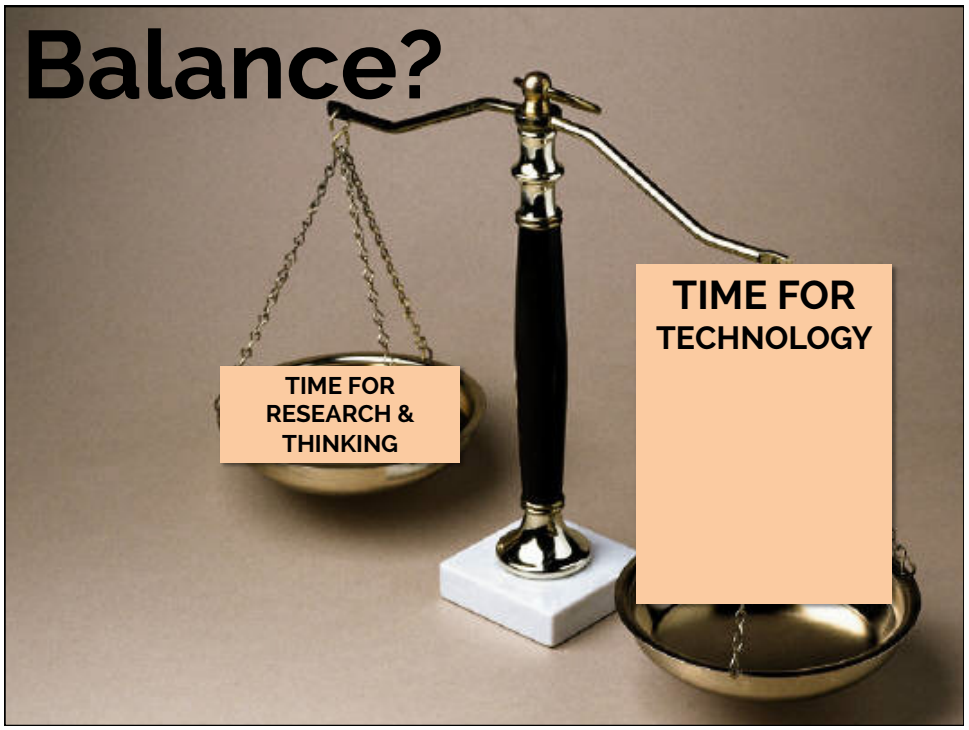
Yes, they're using technology, and yes, it transcends pen-and-paper, but where is the knowledge-building?

ED TECH MATH

student + tech > student

Which parts of this project could NOT be outsourced to India? (And who would buy it?)


Is this ***creative, innovative*** work for **global success**?
Or, ummm, something else?


Balance?
TIME FOR RESEARCH & THINKING
TIME FOR TECHNOLOGY

Where's the Beef?*
How Do We Know ~~Rigor~~ Vigor** When We See It?

* Bernajean Porter;
** Joanne Yatvin

We should have some agreement on what good, tech-rich learning looks like, right?

"Kid computer too" by smemo on Flickr, CC-BY-SA. http://flickr.com/photos/smemo/3588885006/

We need norms.

Norms Matter.

"Harrison Roses" by Susan Noakes McCord, around 1860.
From the collection of The Henry Ford.
http://www.thehenryford.org/exhibits/quiltinggenius/quilts/73_120_1.asp

Quilt for Bobby Unser by "Racing's Quilt Lady" Jeanette Holder.
From the collection of The Henry Ford.
http://www.thehenryford.org/exhibits/pic/2010/may/quilt.asp

Rigor means exciting challenge, not rigor mortis! Insert VIGOR if you prefer

Rigorous Learning with Technology

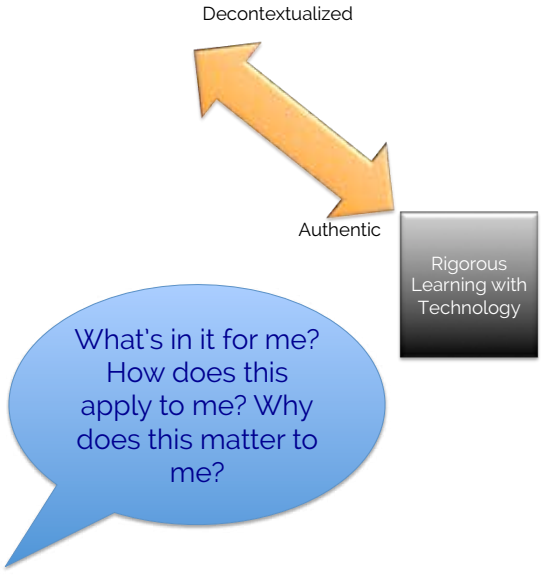
(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)

Rigorous Learning with Technology

* Charles Friedman, definition of Informatics

"Man" by Michael McMillan and "Computer" by Alyssa Mahlberg from thenounproject.com collection.
Used under a Creative Commons CC-BY 3.0 license.

(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)



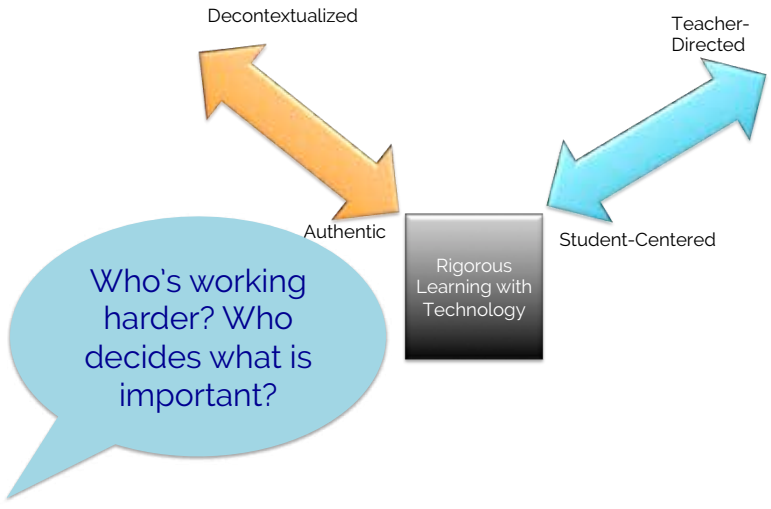
(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)

My Albania Report

The Thrilling Life of Millard Fillmore

South Dakota!!!!!!!!!

Francis Poulenc: Mid-Century French Composer and My Personal Hero



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Research Guide: The Presidents

Name _____

Name of President _____

When was he born? _____

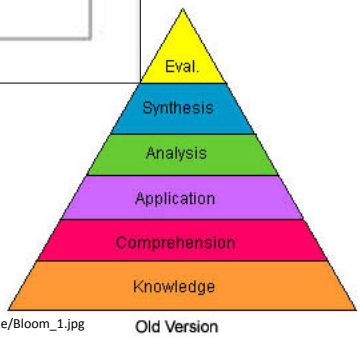
When did he die? _____

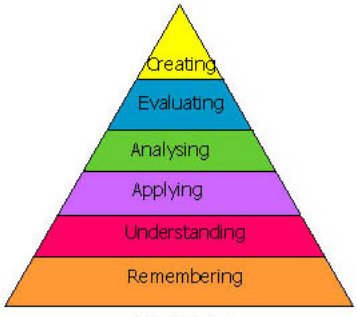
When was he in office? _____

What number president was he? _____

Draw a picture of your president here.

How are we doin' on Bloom's?





http://epltt.coe.uga.edu/images/1/1e/Bloom_1.jpg

Old Version

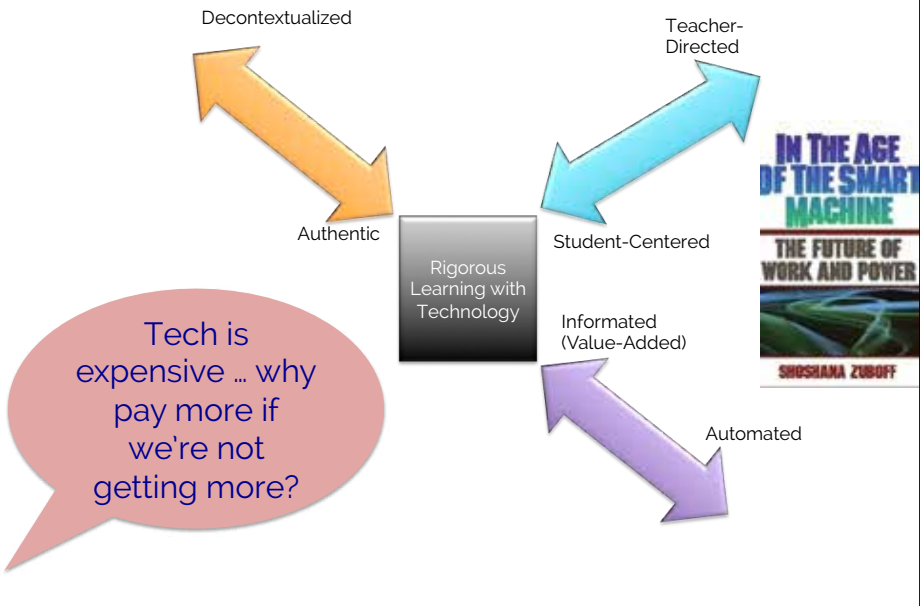
New Version

How are we helping students see the essence of the presidents?

Context in history?

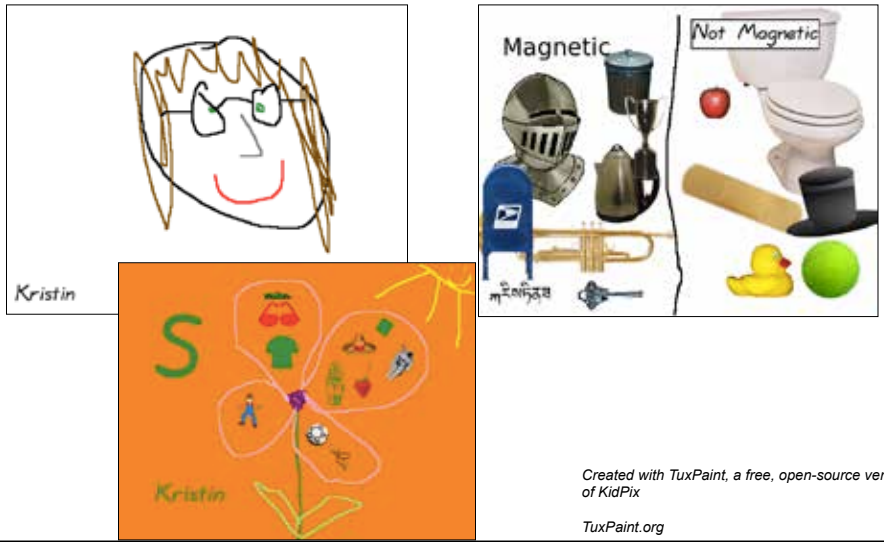
Relevance to how life is today?

http://epltt.coe.uga.edu/images/1/1e/Bloom_1.jpg



(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)

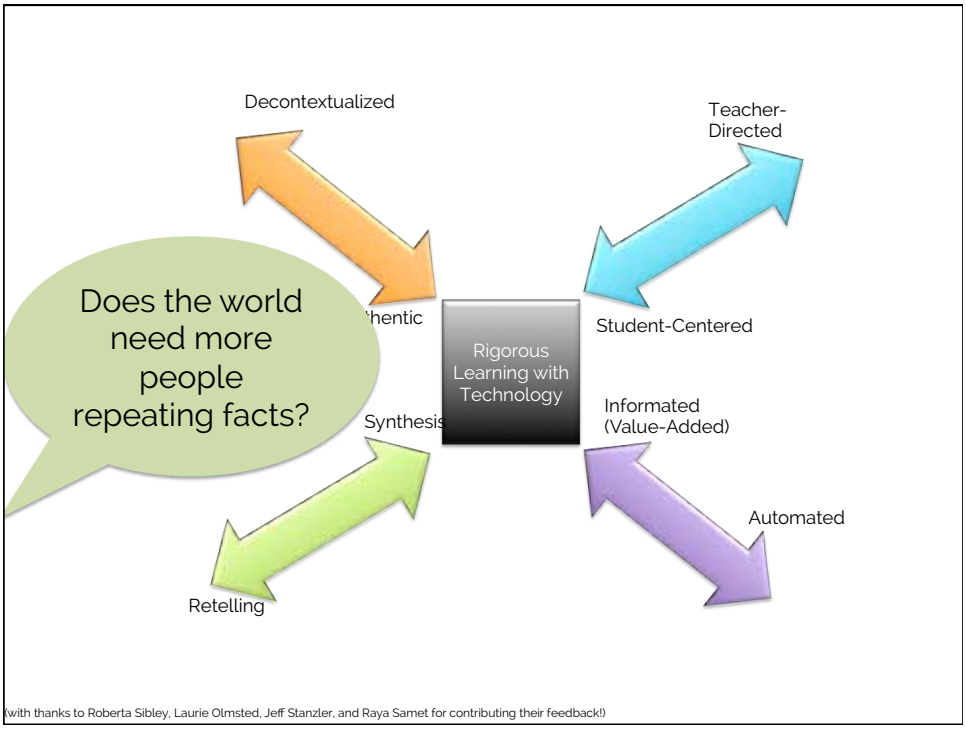
Which of these automate paper and pencil? Informate?



Created with TuxPaint, a free, open-source version of KidPix

TuxPaint.org

In other words, how can technology take students beyond where they can go without technology?

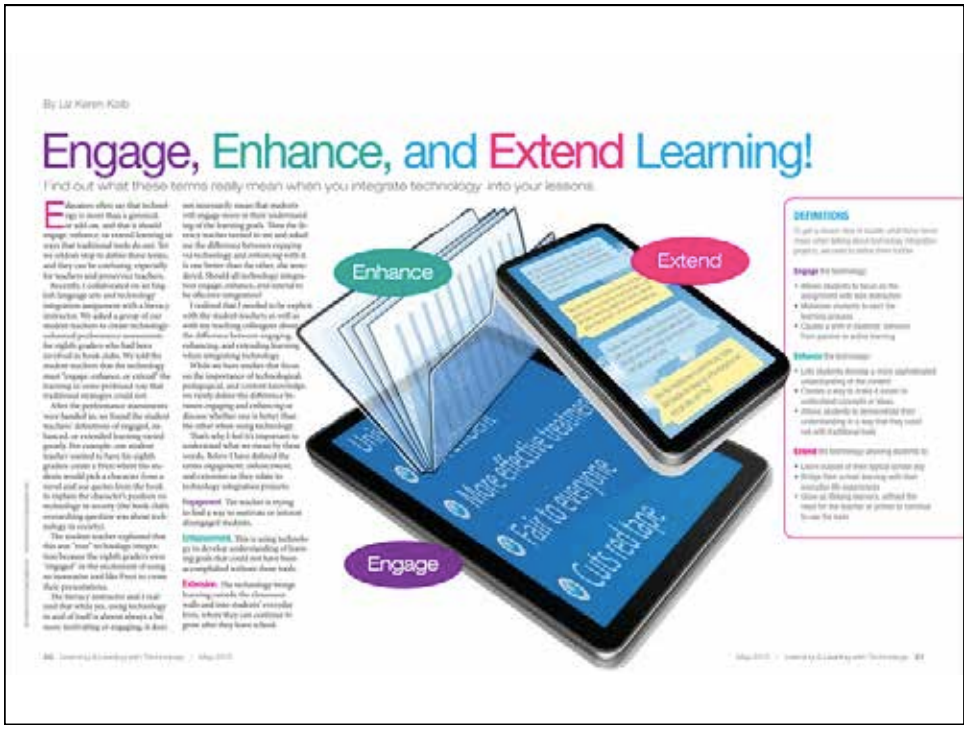


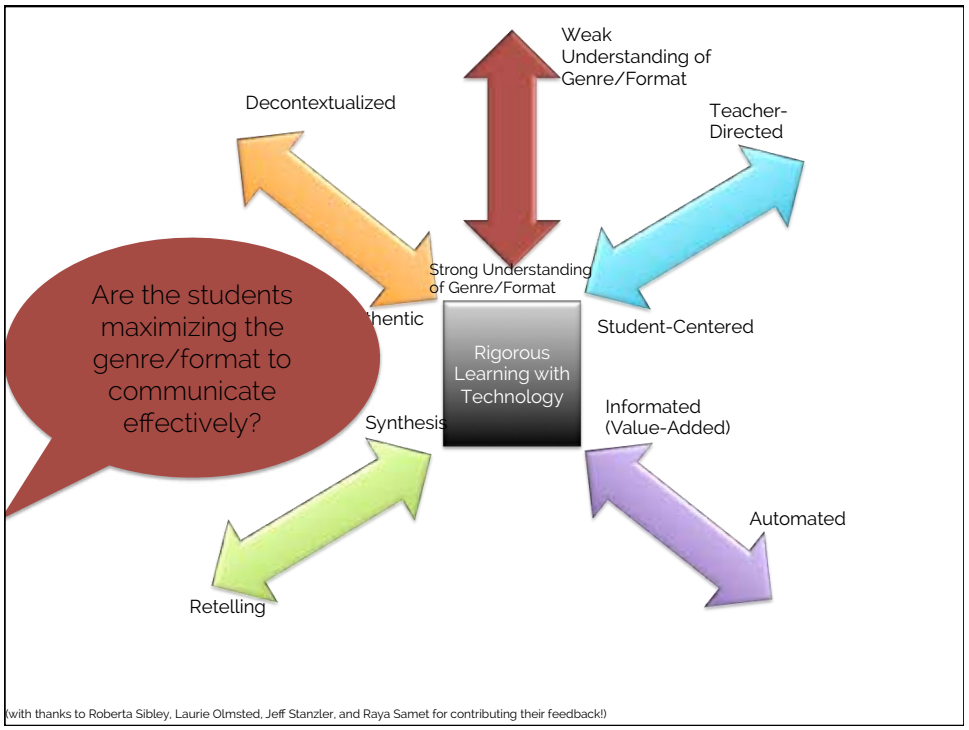
(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)

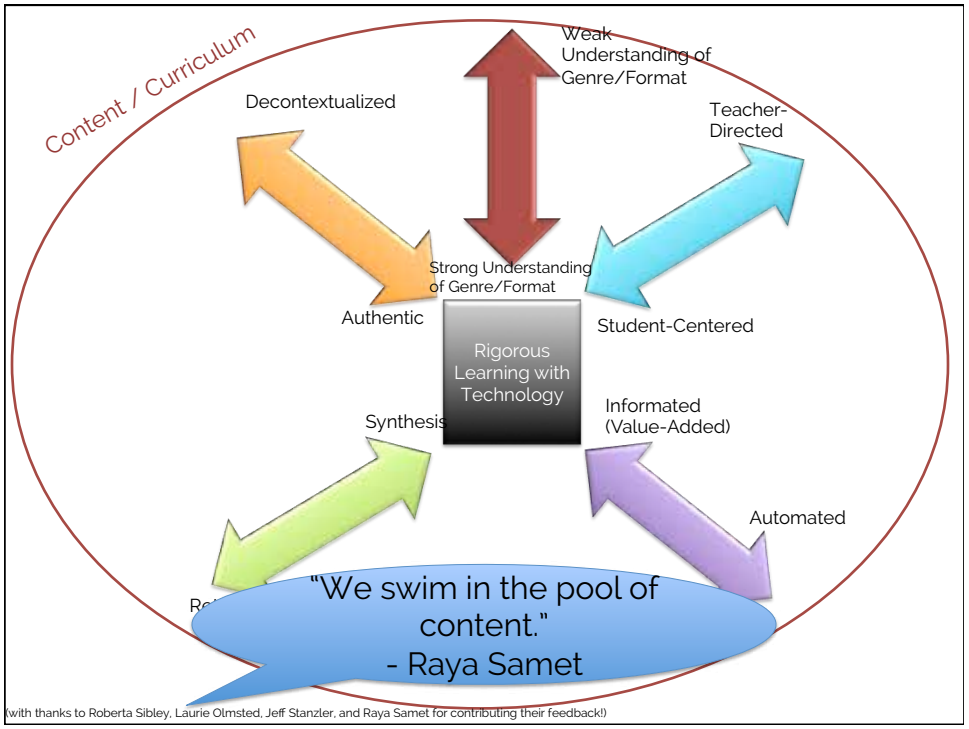
Compare and Contrast

Gerald Ford was the 38th President. He died in 2006. He was from Michigan. He was Vice President before he was President. He lived longer than any other U.S. President. His wife was named Betty.

Have you ever had to forgive someone but you didn't want to do it? I wonder if that is how Gerald Ford felt when he pardoned Richard Nixon. We learn something different from every U.S. President. From Gerald Ford, I learned that it is important to …..


By Liz Kann Kolb
Engage, Enhance, and Extend Learning!
Find out what these terms really mean when you integrate technology into your lessons.
Enhance
Extend
Engage
DEFINITIONS

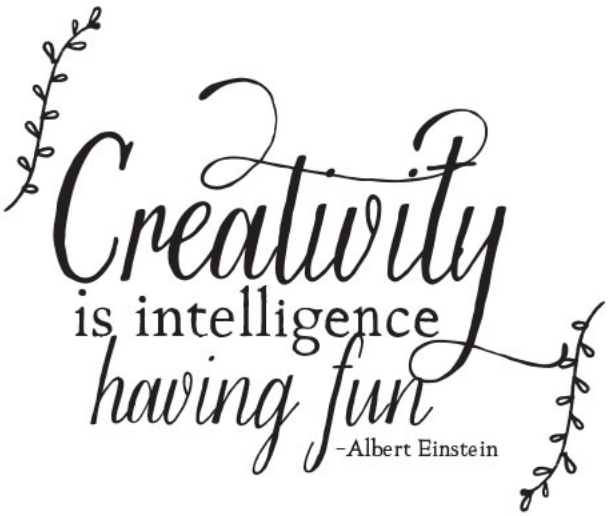

Weak Understanding of Genre/Format
Decontextualized
Teacher-Directed
Are the students maximizing the genre/format to communicate effectively?
Strong Understanding of Genre/Format
Rigorous Learning with Technology
Student-Centered
Synthesis
Informated (Value-Added)
Automated
Retelling
(with thanks to Roberta Sibley, Laurie Olmsted, Jeff Stanzler, and Raya Samet for contributing their feedback!)



Silent Partners

Creativity
Motivation
Enthusiasm
Engagement
"Hands on keyboards"

Image: 'Talk Shows On Mute'
http://www.flickr.com/photos/44538772@N00/678658



http://www.wileyvalentine.com/blog/wp-content/uploads/2013/10/creativityisintelligence.jpg

Testing Our Lens:

Student Work Samples

Recognize this Report?

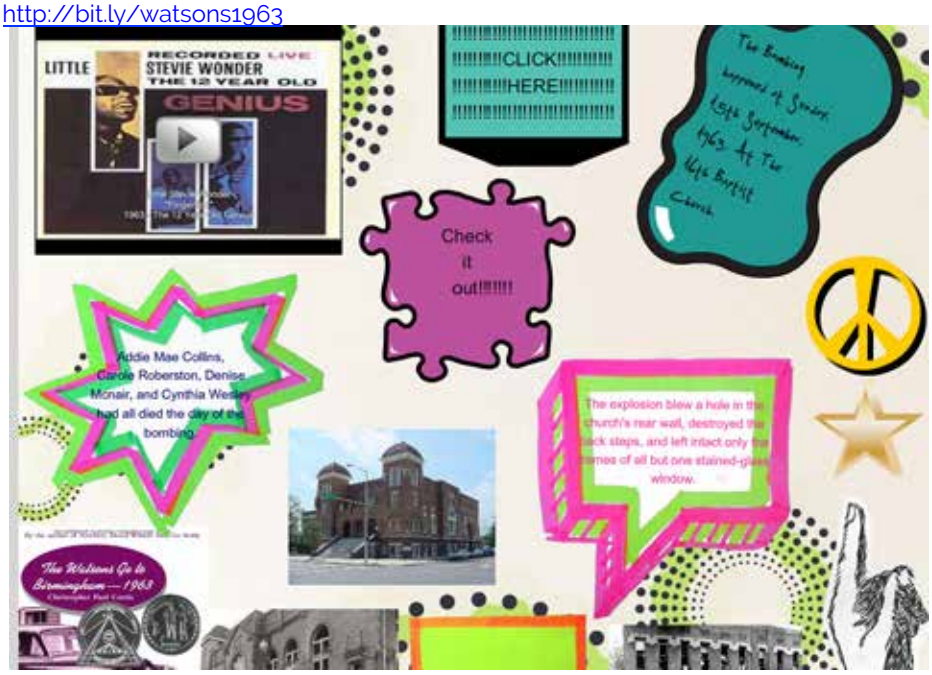
http://bit.ly/sofia-otter

http://bit.ly/sofia-otter

Glogster me, baby!

http://bit.ly/watsons1963

http://bit.ly/watsons1963



http://bit.ly/watsons1963

CLICK HERE!!!!

The bombing happened at Sunday, 15th September, 1963. At the 16th Baptist Church.

Check it out!!!!!!!!!

Addie May Collins, Carole Roberston [sic], Denise Mcnair, and Cynthia Wesley had all died the day of the bombing.

The explosion blew a hole in the church's rear wall, destroyed the back steps, and left intact only the frames of all but one stained glass window.

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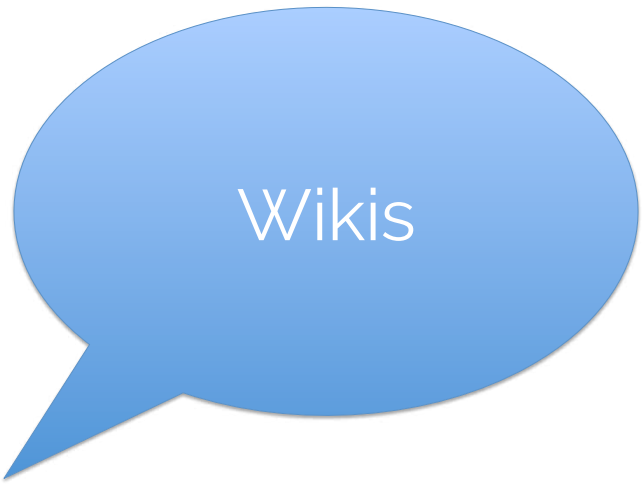
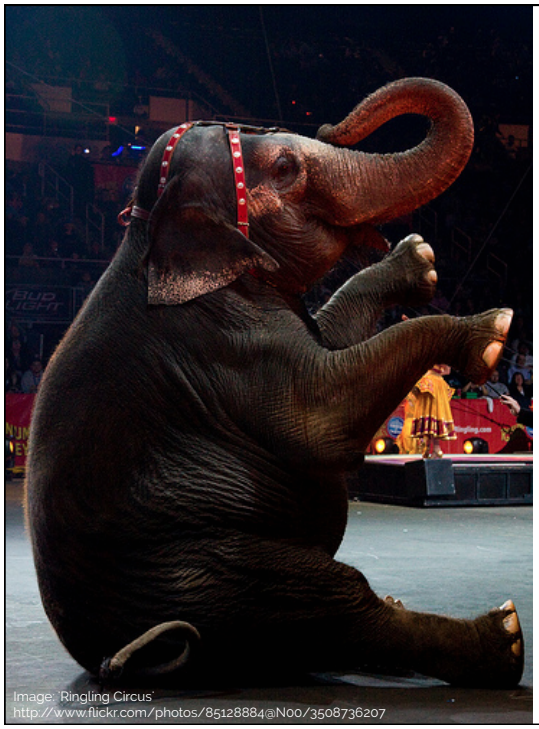
Fred's students are required to blog weekly for fifth grade social studies. They summarize what they have learned and then are asked to think about how what they are learning relates to their lives today. They are also required to comment productively on each others 'blogs.



In Maria's science class, students conduct experiments in small groups. Then, they go to the class wiki, where Maria has already set up a table with a row where each group can report its data. By pooling data onto a single table, students can clearly see if their data follows the patterns of other groups.

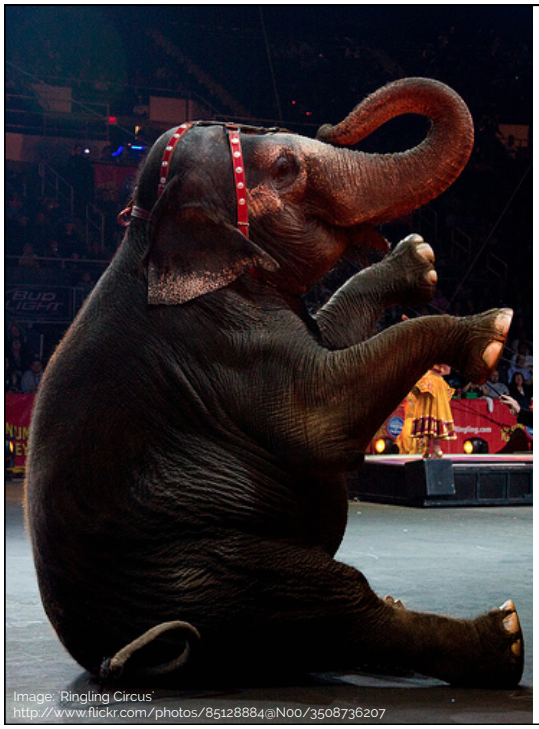


How are we doing with time?

Wordle

With your group, choose one of the sample projects you saw and discuss

- how you could tweak it to deepen the level of cognition, problem-solving, decision-making, or critical thinking
  or
- how you could build further discussions around the artifact so as to deepen the overall experience.



How are we doing with time?

My Ed Tech Manifesto

Finish one of these sentences:

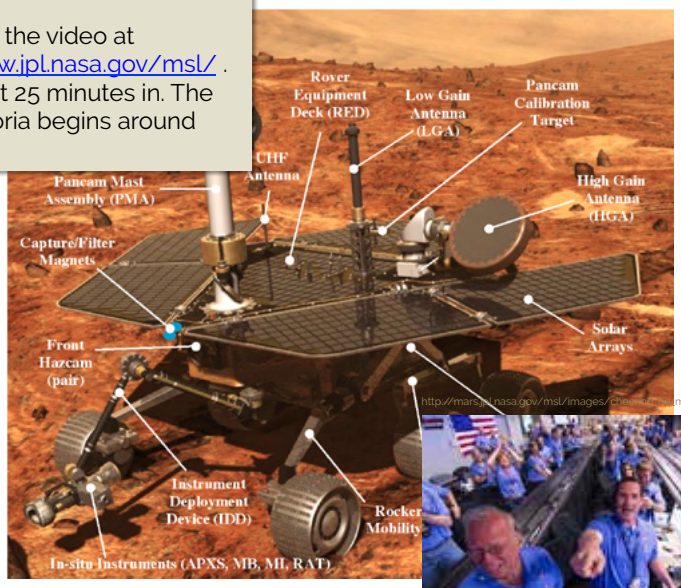
I believe in using technology that _____.

When using educational technology, I will maximize _____ and minimize _____.

(Or create your own!)

Aren't we really trying to get our students to be able to …

Watch these engineers celebrate!
Check out the video at http://www.jpl.nasa.gov/msl/ . Start about 25 minutes in. The real euphoria begins around 28:45.



http://marsrover.nasa.gov/mission/images/rover1_detail_50

http://mars.jpl.nasa.gov/msl/images/ch msl20120805-hpfeat.jpg

CNET › News › Cutting Edge

Google self-driving car 300,000 miles -- and counting

Company registers progress but cautions of "a long road ahead" (pun intended), especially when navigating snow-covered roadways and interpreting temporary construction signals.

by Charles Cooper | August 7, 2012 4:07 PM PDT

Follow

(Credit: Google)

Google screws around with a lot of far out, even cockamamie projects -- well, because it can and it's fun. Two good reasons that few can fault.

And it's also a good way to push the proverbial tech envelope. So it is that Google's update about the company's self-driving car project suggests this is turning into something more than Sergey & Larry's homebrew experiment.

> Our vehicles, of which about a dozen are on the road at any given time, have now completed more than 300,000 miles of testing. They've covered a wide range of traffic conditions, and there hasn't been a single accident under computer control.

http://news.cnet.com/8301-11386_3-57488731-76/google-self-driving-car-300000-miles-and-counting/

http://cdn.ientry.com/sites/webpronews/pictures/magicarms_616.jpg

"Monday" Morning Takeaway?
http://todaysmeet.com/aims
'Riced out'
http://www.flickr.com/photos/65694461@N00/350982994

Questions?
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Raspberry Pi
Maker Faire
UNDERSTANDING AND CREATING INFOGRAPHICS
Podcasting at School
21st-CENTURY LEARNING