Neuroscience + Learning Research + Education Technology = EDUCATION 3.0

Dr. Jeff D Borden
Scale of the Universe

Giant Earthworm

Meter (m) (Diameter)
10^9 meters

Human

Dodo Bird

Rafflesia

Beach Ball

1 m

http://innovation.saintleo.edu
Online Gym Class

http://innovation.saintleo.edu
Motivation
Cut Off R.E.M. = B.A. of .10
Trend Spotting

- http://digital.hechingerreport.org/content/8-ed-tech-predictions-for-2014-part-1_1101/

School of Thought: https://www.youtube.com/watch?v=7idyNlvVCis
School of Thought: Simone’s Story
The “C’s” of Education
“Given her deafness, the auditory part of the brain, deprived of its usual input, had started to generate a spontaneous activity of its own, and this took the form of musical hallucinations... The brain needed to stay incessantly active, and if it was not getting its usual stimulation..., it would create its own stimulation in the form of hallucinations.”

Oliver Sacks, Musicophilia: Tales of Music and the Brain
e-vangelists vs C.A.V.E. People
Everyone else...

Source: Fishbein and Ajzen (1975)
Hidden Patterns
Brain Candy

brain rules
12 Principles for Surviving and Thriving at Work, Home, and School
JOHN MEDINA

HINT

Knife
Spade
Fountain Pen
Golf Club
Wrench
Bell
Cantaloupe
Flute
Charm Bracelet
Wishbone
Soccer Ball
Thimble
Pattern Recognition
Pattern Recognition
Patterns
Hidden Patterns
Tell me and I forget. Teach me and I remember. Involve me and I learn.

Benjamin Franklin
E-Ball
E-Ball
Social and Physical Pain

Illustration: Samuel Valasco
Stops Social Pain
Conflict (Structured Disagreement) Leads To Better Learning
Columbus: The Known

• Born in Genoa to poor Italian parents
• Developed great navigation skills leading to the understanding that the world was NOT flat
• Because the Turks had cut off the Middle Eastern routes, convinced King & Queen of Spain he could get to Asia via the west
• Nina, Pinta, Santa Maria were barely outfitted and weather battered
• Sailors almost mutinied several times
• Discovered America
Columbus & Motivation

• May not have been Italian
• Most Europeans knew world was not flat
• Middle East routes were open
• 3 ships were well outfitted and weather was fine
• Sailors were not upset
• Evidence of Africans, Romans, Vikings, and 15-16 groups in America from the 1100’s
Conflict

• Columbus wrote a friend in 1500 about rewarding dignitaries and his lieutenants with native women to rape, "... it is very general and there are plenty of dealers who go about looking for girls; those from nine to ten are now in demand...” (p. 65)

• Catalyst for learning
Connecting To Perception

• Internal Perception
  - What you believe to be true.

• External Perception
  - What others believe to be true about you.
  - Ice Cream Flavor Test

I’m Funny

He Thinks He’s Funny
Mark Edmundson
National Survey of Student Engagement, USA 2009

Percentage of Class Time Allocated to Lecturing by Course Level and Academic Discipline

- Lower
- Upper

Overall Mean

- Arts & Hum
- Bio Sci
- Bus
- Educ
- Engr
- Phy Sci
- Prof
- Soc Sci
- Other

Percentages:
- Arts & Hum: Lower 33%, Upper 31%
- Bio Sci: Lower 62%, Upper 60%
- Bus: Lower 47%, Upper 44%
- Educ: Lower 26%, Upper 23%
- Engr: Lower 57%, Upper 63%
- Phy Sci: Lower 45%, Upper 43%
- Prof: Lower 46%, Upper 46%
- Soc Sci: Lower 40%, Upper 43%
Lectures = Less Success

• “Students in lectures are 1.5 times more likely to fail...”
• Exam Scores: -5%
Engagement
TEACHING TODAY: A BALANCED APPROACH?

- Tell
- Show
- Do
- Review
- Ask

@bordenj
http://innovation.saintleo.edu
“Do not confine your children to your own learning for there were born in another time.”
Common College Outcome

• Communication:
  – Nonverbal
    • Haptics
    • Objectics
    • Proxemetics
    • Chronemics
    • Optics
    • Vocalics
    • Kinesics
  – Mirroring
Kinesic Mirroring: Modern Communication

2007 NYTimes
“The majority of communication in the workplace occurs over email and chat today.”

2009 WSJ:
“…leading more and more Fortune 500 companies to ask if future employees have taken an online class.”
YouTube Video: Have You Been Paying Attention?

Have you been paying attention?

And a mere 39% believe that school work will have any bearing on their success in later life.

“These teens were born into a digital world where they expect to be able to create, consume, remix, and share material with each other”

Lee Rainie, Director, Pew Internet and American Life Project
Edu-Blogger:

• “...Has anyone seen this garbage? Students don’t need to remix anything! *Educators must teach them to be original, have original thought, and do original work!* Imagine if society worked this way.

• We’d still be hoping someone would invent the rolling stone so as to create a wheel. *Imagine a world where using other people’s work to create your own was ok.*

• *We’d never have gotten past the toaster to see the benefits of the microwave. We’d never have gotten past swing music to experience amazing original works like Elton John’s “The Lion King” or other seminal works...*”

http://innovation.saintleo.edu
Remix, Sample or Steal?

- 1996 - Can You Feel The love Tonight?
- Save tonight, fight the break of dawn, come tomorrow, tomorrow I’ll be gone...
- You’re beautiful! You’re beautiful!
- If I could, then I would, I’ll go wherever you will go, way up high, or down low, I’ll go wherever you will go...
- Never mind, I’ll find someone like you - I wish nothing but the best for you too...
Remix, Sample or Steal?

1989 - Harry Truman, Doris Day, Red China, Johnnie Ray, South Pacific, Walter Winchell, Joe DiMaggio, Joe McCarthy, Richard Nixon, Studebaker, television, North Korea, South Korea, Marilyn Monroe...

1989 - Wherever you go - whatever you do, I will be right here waiting for you...

1987 - I think we’re alone now, there doesn’t seem to be anyone around...

1984 - We’re not gonna take it, no we ain’t gonna take it - we’re not gonna take it anymore...
Remix, Sample or Steal?

See the stone set in her eyes, see the thorn twist in her side, and I’m waiting for you, with or without you
Remix, Sample or Steal?

1984 - Take on me *(YOU: take on me!)*, Take me up 
*(YOU: take on me!)*, I’ll be gone

?????

1981 - Just a small town girl - living in a lonely world  
- she took the midnight train going anywhere
Remix, Sample or Steal?

1976 - On your mark, get set, and go now - gotta dream and we just know now

1970 - When I find myself in times of trouble, Mother Mary comes to me, speaking words of wisdom, let it be

1961 - When the night has come, and the land is dark, and the moon is the only light we’ll see

1690?!?!?!

@bordenj
Create, Consume, REMIX, Share
“As I was writing Brain Rules, it hit me [that] if you wanted to design a learning environment that was directly opposed to what the brain is naturally good at doing, you would design something like a classroom.”
Thank You!

jborden@jeffpresent.com

• @bordenj
• http://jeffpresent.com
• http://insights.wired.com/profile/DrJeffBorden#axzz2UZ4cxP1R
• http://researchnetwork.pearson.com/blog
• http://pearsonlearningsolutions.com/blog/?s=jeff+borden&x=-1066&y=-133
• To see the Short-Film “School of Thought” that Jeff wrote and produced: http://researchnetwork.pearson.com/sot
Teach Better: Recommended Reading

• How To Get An Idea (Foster, 2007)
• Drive (Pink, 2011)
• Mindset (Dweck, 2007)
• Brain Rules (Medina, 2014)
• Now You See It (Davidson, 2012)
• The Gamification of Learning and Instruction (Kapp, 2012)
• Active Learning: 101 Activities to Teach any Subject (Silberman, 1996)
• What the Best College Teachers Do (Bain, 2004)
Teach Better: Good Follows

- Ken Robinson
- George Siemens
- Jeffrey Selingo
- Jackie Gerstein
- Larry Ferlazzo
- Dan Meyer
- Rob Letcher
- Geoff Leigh

- Edutopia
- Eduventures
- Educause
- NUTN
- ProfHacker
- WiredCampus
- Wired Innovations
- TheAtlanticEducation

@bordenj

http://innovation.saintleo.edu