**Education 3.0:**
My, Our Learning World is Changing!

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**Eight Books About Education 3.0**

**1. Invent to Learn:**
Making, Tinkering, and Engineering in the Classroom
Sylvia Libow Martinez & Gary Stager (2013)

http://www.inventtolearn.com/

Using technology to:
- Making
- Tinkering
- Repairing
- Inventing
- Customizing

-- the things we need brings engineering, design, and computer science to the masses.

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**2. Finding Your Element:**
How to Discover Your Talents and Passions and Transform Your Life
Sir Ken Robinson and Lou Aronica (2013)

http://www.inventtolearn.com/

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Read any good books lately?
Finding Your Element: How to Discover Your Talents and Passions and Transform Your Life
By Lou Aronica and Ken Robinson (2013)
http://www.inventtolearn.com/

- Find your zone (deep in the throes of exploration and personal passion)
- Think differently (make fresh connections and analogies; avoid groupthink)
- Do something, develop your creative ideas
- Use your imagination, play with ideas
- Free and open exchange of ideas
- Encourage expression of personal ideas/feelings

3. Out of Our Minds: Learning to be Creative
By Sir Ken Robinson (2011)
http://www.inventtolearn.com/

4. Makers: The New Industrial Revolution (DIY Culture)
Chris Anderson (2012)
http://www.inventtolearn.com/

- People make products (and from home)
- Technology (e.g., 3-D printing) makes us all manufacturers
- Instant connections to potential customers
- Hold up things you personally design
- Desktop fabrication
- Do-it-yourself (DIY) industry

5. Drive: The Surprising Truth About What Motivates Us
Daniel Pink (2009)
RSA Animate:
http://www.youtube.com/watch?v=u6XAPnuFJdc
http://www.ted.com/talks/dan_pink_on_motivation
http://www.danpink.com/books/drive/

Drive: The Surprising Truth About What Motivates Us
Daniel Pink (2009)

Motivation 3.0
- Freedom, challenge, purpose
- Creative, interesting, and self-directed work
- Intrinsic motivation
- Life as play and possibility
- Engagement and mastery
- Autonomy
6. The Highest Goal: The Secret That Sustains You in Every Moment
http://creatinginnovators.com/
- Find real meaning
- Become a generative leader
- What makes you feel connected, motivated, sustained
- Travel your own path
- Go beyond passion and success
- Relate from your heart
- Turn fears into breakthroughs

Tony Wagner (2012)
http://creatinginnovators.com/
- Play
- Passion
- Purpose and life goals
- Open cultures of innovation and interdisciplinary problem solving
- Collaboration
- Intrinsic motivation

8. Mindset: The New Psychology of Success
Carol Dweck (2006)
http://mindsetonline.com/index.html
http://mindsetonline.com/testyourmindset/step1.php
- Growth vs. fixed (i.e., entity) theories of intelligence
- Intelligence is not fixed
- Practice, practice, practice
- Do not blame others
- Learning goals over performance goals
- Asks: What can I learn from this?
- Asks: How can I improve?
What skills do we need in the 21st Century?

The Seven Cs – 21st Century Lifelong Skills

<table>
<thead>
<tr>
<th>Seven Cs</th>
<th>Component Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td>Problem solving, decision making, critical thinking</td>
</tr>
<tr>
<td>Creativity</td>
<td>Use knowledge creatively, brainstorm, think outside box</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Communicate, listen, negotiate, teambuilding, empathy</td>
</tr>
<tr>
<td>Cross-cultural Understanding</td>
<td>Cross-cultural Skills, linguistic awareness, respect for different cultures</td>
</tr>
<tr>
<td>Communication</td>
<td>Listening, writing, oral presentation, empathy</td>
</tr>
<tr>
<td>Computing/IT Literacy</td>
<td>Drafting messages and policy, coding, using software</td>
</tr>
<tr>
<td>Career &amp; Learning Self-Efficacy</td>
<td>Managing learning and career development</td>
</tr>
</tbody>
</table>

If you had to give a word or phrase to describe “21st Century Skills,” what would that word be?

1. Locate info, synthesize it,
2. Use and communicate effectively and ethically,
3. Evaluate products,
4. Producers and consumers of visual info,
5. Sensitive to bias and cultural differences,
6. Sets own goals,
7. Willing to make mistakes,
8. Comparison and contrast skills, inferencing skills,
9. Participate in a team, exercise leadership
10. Make decisions

Digital Literacy
(Bonk, June 2, 2007)

Digital literacy is the ability to browse, locate, filter, synthesize across, and eventually use information appearing in multiple formats and in a wide range of sources that can lead to communication of what one discovered as well as the production of still additional information. (Paul Gilster (1997), Digital Literacy.)

This Generation of Students

1728: 1st correspondence course advertised Boston
1728-1990s – Generally postal system based
1930s – phonograph and radio
1950s and 1960s – television
1970s and 1980s – VHS tapes
1980s and 1990s – DVD

Audience Poll #1:
Has learning technology has transformed your life.

1728: 1st correspondence course advertised Boston
The First University Correspondence Course
(University of London, External Program, 1858)
1728-1990s – Generally postal system based
1930s – phonograph and radio
1950s and 1960s – television
1970s and 1980s – VHS tapes
1980s and 1990s – DVD
May 10, 2013
10 ed-tech tools of the 70s, 80s, and 90s
eSchool News, Meris Stansbury
http://www.eschoolnews.com/2013/05/10/ed-tech-tools-of-the-70s-80s-and-90s/print/

Looking to the Past...

Took Correspondence & TV Courses
(thanks to Bob Clasen and Charles Wedemeyer, the University of Wisconsin)

Life as an accountant/CPA in a high tech company in the 1980s...

Knowledge Navigator (1987)
Apple Computer
http://www.youtube.com/watch?v=hb4AzF6wEoc

Fast Forward 25+ Years...
“Anyone can now learn anything from anyone at any time.”
May 20, 2013
The New Greatest Generation: Why Millennials will Save Us All, Time, Joel Stein
https://www.time.com/time/magazine/article/0,9171,2143001,00.html

Audience Polls #2:
I. Who remembers where they were when they found out that Steve Jobs died?
II. Who remembers what they were doing on 911?
III. Who remembers what they were doing on 441 (i.e., April 4, 2001)?

Charles Vest (April 4, 2001)
"This is about something bigger than MIT. I hope other universities will see us as educational leaders in this arena, and we very much hope that OpenCourseWare will draw other universities to do the same. We would be delighted if -- over time -- we have a world wide web of knowledge that raises the quality of learning -- and ultimately, the quality of life -- around the globe."

Fast Forward to February 2014
MIT OCW and the OpenCourseWare Consortium

MIT OpenCourseWare (OCW)
http://ocw.mit.edu/index.htm

Reasons to explore?
Main Reason Explore the Web Informally to Learn (MIT OCW Group; Note: Check all that apply)
Factors leading to success or personal change?

Factors Leading to Success or Personal Change When Exploring Online

(MIT OCW Group; Note: Check all that apply)

February 5, 2013
Bioelectricity: A Quantitative Approach,
Duke University’s First MOOC

http://re明代cns/10.1126/science.1241918.pdf

June 2013
MOOCs at Edinburgh 2013 – Report #1

May 2013
MOOCs @ Edinburgh 2013 – Report #1

October 31, 2013
U.S. Teams Up With Operator of Online Courses to Plan a Global Network, Tamar Lewin, NY Times


From Seoul, South Korea, to La Paz, Mexico, Coursera is partnering with local institutions to create “Global Learning Hubs,” the company announced Oct. 31.

September 16, 2013
Rwandan Degree Program Aims for a ‘University in a Box’, Chronicle of Higher Education, Megan O’Neil

http://chronicle.com/article/Rwandan-Degree-Program-Aims/141631/

Students attend an orientation session at Kepler, a new hybrid program in Kigali, Rwanda, which will use MOOCs and classroom time to help students earn competency-based associate degrees.

October 31, 2013
The launch of OERu: Towards free learning opportunities for all students worldwide, BC Campus (Canada)

http://watch agendas.com/2013/10/29/the-launch-of-oueru-towards-free-learning-opportunities-for-all-students-worldwide/

http://bccampus.ca/2013/10/31/the-launch-of-oeru-towards-free-learning-opportunities-for-all-students-worldwide/
Part I. Learning is Changing
New Technologies = New Delivery Methods...

II. Learning is More Video-Based
Adora Svitak, WFP Youth Representative - 2013
ECOSOC Youth Forum, March 27, 2013

III. Learning is More Flipped
One Man, One Computer, 10 Million Students: How Khan Academy Is Reinventing Education, Forbes, November 19, 2013, Michael Noer
The One World Schoolhouse (Twelve, Oct. 2, 2012)

IV. Learning also is More Collaborative
Collaboration and Discussion in Google Hangouts or with iPad, Jan. 28, 2013
(Carrie Gong from Beijing Normal University)

V. Learning is More Mobile
Open Learning on Smartphone
(Coursera, December 8, 2013)
http://blog.coursera.org/post/69518555384/this-holiday-season-learn-on-the-go-with-the-new
March 2014
VI. Learning is More Massive
Courses on How to Design Learning Environments
(Gilly Salmon, Swinburne University, Melbourne and
Paul Kim from Stanford University, Aaron Doering,
University of Minnesota)

January 21, 2014
MITx Working Papers (research on MOOCs)
http://ocw.mit.edu/mitx-working-papers/

January 2014
Grade Change: Tracking Online Education in the
United States, 2013, The Sloan Consortium, I. Elaine Allen & Jeff Seaman,
2013 Survey of Online Learning Report
http://sloanconsortium.org/publications/survey/grade-change-2013
Direct connect: http://www.onlinelearningreport.com/reports/gradechange.pdf

VII. Learning is More Social
Facebook reaches one billion users, CNN Money, Aaron Smith, October 4, 2012

January 2014
VIII. Learning is More Online
Grade Change: Tracking Online Education in the
United States, 2013, The Sloan Consortium, I. Elaine Allen & Jeff Seaman,
2013 Survey of Online Learning Report
http://sloanconsortium.org/publications/survey/grade-change-2013
Direct connect: http://www.onlinelearningreport.com/reports/gradechange.pdf

Nontraditional Learning Rises
(e.g., Balloon, March 4, 2014)
https://www.balloon.com/
IX. Learning is More Personal

**iPotty Aims To Entertain Toddlers During Toilet Training**, Mashable, Kate Freeman (January 10, 2013)

http://mashable.com/2013/01/10/ipotty/

X. Learning is More Modifiable


XI. Learning is More Comfortable

**Design for Students, with Students**, “Hub Central”, the $42 million University of Adelaide learning hub opened in October 2011, May 8, 2012, Mike Roberts

http://designbuildsource.com.au/design-for-students-with-students

XII. Learning is More Global

**UC Irvine (2013 report)**

Example 3: Fundamentals of Japanese

Dr. Hidemi Riggs, Fall 2012 & Winter 2013, Tech-enhanced: EEE AdvancedWebspace (Dreamweaver), Skype video conferencing tool, Active Learning, Format: 5-1 lecture (24 students maximum); 3-2 lecture (24 students maximum); 2-3 lecture (24 students maximum)

XIII. Learning is More Ubiquitous

**Flexible displays bend what’s possible for computers**, Jon Swartz, USA Today (May 4, 2012)
IXV. Learning is More Instantaneous
April 9, 2013
Her computer fashions face social test: Can wearable computers fit in? Scott Martin, USA Today
(i.e., magnify moles or injuries, see vital signs, live stream surgeries, access previous PT sessions, access research and drug info, etc.)

Google Glass: Freaky, geeky toy aims to save lives
USA Today, Marco della Cava, March 3, 2014
http://www.usatoday.com/story/tech/2014/02/28/google-glass-developers-saving-lives/5710577/

XV. Learning is More Technology-Based
DataWind Prepared $20 Tablet Computer for Indian Market

Let’s Review:
Learning is Changing...
(i.e., it’s more informal, video-based, ubiquitous, collaborative, self-directed, global, mobile, open, massive, etc.)

Frank Basile, an aircraft technician, took an MITx course on circuits and electronics to increase his knowledge.
Joe Alfonso, a financial adviser from Oregon, is taking the online finance course as a “refresher.”

Poll #3: Is this a revolution in education today?
A. Yes...
B. No...
April 15, 2013
World will soon be “Webified”
Google boss: Entire world will be online by 2020,
Doug Gross, CNN

Google Wi-Fi from the Sky, Steven Levy,
pp. 126-131, Wired, September 2013
http://www.wired.com/gadgetlab/2013/08/googlex-project-loon/

The World is very open!
(at least in Norway and the Philippines)

My dog is content....

July 16, 2013
“Golden Era of Learning”
Bill Gates Discusses MOOCs at Microsoft Research’s Faculty Summit
I am not Content!!!

January 29, 2014
Maybe it is not so open!
(e.g., MOOCs and the Promise of Internationalization,
The Chronicle of Higher Education, Christina C. Davidson)

May 24, 2010
Author Nicholas Carr, The Web Shatters Focus, Rewires Brains, Wired
http://www.wired.com/magazine/2010/05/ff_nicholas_carr/

May 6, 2013
Faculty Backlash Grows Against Online Partnerships
Chronicle of Higher Education, Steve Kolowich
http://chronicle.com/article/Faculty-Backlash-Grows-Against/120569/

June 19, 2013
2013 is “The Year of the Anti-MOOC”
George Siemens, UW-Madison Summit
We are entering a jumping off point…

The Web of Learning

Framework #1: WE-ALL-LEARN: Ten Forces that Opened the Learning World

- Web Searching in the World of e-Books (i.e., Darwin)
- E-Learning and Blended Learning
- Availability of Open Source and Free Software (e.g., Moodle)
- Leveraged Resources and OpenCourseWare (e.g., MIT)
- Learning Object Repositories and Portals (i.e., shared content)
- Learner Participation in Open Info Communities (YouTube)
- Electronic Collaboration and Interaction (sync and async)
- Alternate Reality Learning (Online Massive Gaming, Simulations, and Virtual Worlds; e.g., Second Life)
- Real-Time Mobility and Portability (e.g., iPhone)
- Networks of Personalized Learning (Blogs, RSS)

Audience Participation!
WE
ALL
LEARN!!!

Opener #1. Web Searching (e.g., Google, MSN, Yahoo!) in the World of e-Books (i.e., Darwin, Shakespeare, etc.)

OpenStax College
(OpenStax College offers students free textbooks that meet scope and sequence requirements for most courses. These are peer-reviewed texts written by professional content developers.)
http://openstaxcollege.org/
Opener #2. E-Learning and Blended Learning

February 2014
IU Online Enrollments (at least one class online)

Opener #3. Availability of Open Source and Free Software Moodle
(October 18, 2013: 72 million users in 237 countries, 84,518 sites, 7.6 million courses)

Opener #4. Leveraged Resources and OpenCourseWare (OCW) (e.g., free courses from Harvard Edx, MITx, CORE, OOPS)

August 5, 2013
Free Online Higher Education: 5 Best MOOCs
By Kannan Sankaran, Epoch Times

September 18, 2013
MIT Will Offer MOOC Curricula, Not Just Single Courses, on edX, Steve Kolowich, Chronicle of HE

Free Online Higher Education: 5 Best MOOCs
By Kannan Sankaran, Epoch Times

MOOC at UPenn; Recession Fuels Explosion of Online Learning
http://on.aol.com/video/recession-fuels-explosion-of-online-learning/517580597
November 4, 2012

Udemy (professors create own courses)
(e.g., “Planning Your Online Course”)
https://www.udemy.com/courses/

Opener #5. Online Learning Object Repositories and Portals (shared content)
http://www.deadseascrolls.org.il/explore-the-archive/search#q=site_en:'Qumran,_Cave_4'
http://www.deadseascrolls.org.il/home

October 2010, The V-PORTAL (Bonk, IU)
“Video Primers in an Online Repository for e-Teaching and Learning” V-PORTAL,
TravelinEdMan (27 free/open YouTube videos)
http://www.youtube.com/user/TravelinEdMan

Opener #6. Learner Participation in Open Information Communities (e.g., Wikipedia, YouTube, Scribd)

Opener #7. Electronic Collaboration and Interaction (synchronous & asynchronous)
Soliya Connect
http://gli.georgetown.edu/#soliya

Opener #8. Alternate Reality Learning (Online Massive Gaming, Simulations, and Virtual Worlds; e.g., Second Life)
Video games may improve brain power in older adults
Opener #9. Real-Time Mobility and Portability (e.g., iPhone, iPads, smart watches (September 4, 2013))

Mobile is the Most Pervasive Technology Ever

Opener #10. Networks of Personalized Learning (Blogs, Podcasts, Facebook, and RSS feeds, etc.)

May 22, 2013 Video Walls of Experts (IQ Wall) Indiana University unveils high-tech classroom The Herald-Times, Mike Leonard

What about the Instructor in the Open World?

A Dozen “C” Metaphors of Instructors (e.g., “Cat Herders”)
1. Instructor as Credit Manager

2. Instructor as Court Room Judge

3. Instructor as Counselor

4. Instructor as Consultant

5. Instructor as Conductor

6. Instructor as Course Ambassador
October 27, 2012
Travel for Office Hours, 42,000 students
Chuck Severance, (U Michigan/Coursera) in Barcelona
http://www.youtube.com/watch?v=JzNHmSu8TI

7. Instructor as Curator

8. Instructor as Concierge

9. Instructor as Camping Trip Guide

10. Instructor as Cultivator
How About Instruction as a Cognitive Apprenticeship?


Exactly 20 Years Later... Our minds were on fire!

Why Education 3.0?
(Global Education Leaders Program (GELP))

- Globalization
- Demographic Shifts
- Technological Revolution
  - Transfer of ownership to students
  - Collaborative learning technologies
  - Holistic change in complex and interdependent system
  - Higher-order thinking focus

GETideas Channel, Cisco
(Thought Leader Series uploaded to YouTube Edu)
Education 3.0: 'Learning Psychology'—Embracing Better Ways to Teach
Jeff Borden, Pearson, October 28, 2013

- Calculations (active)
- Compelling questions
- Communication of results
- Critical Thinking
- No single theory, report, or strategy (Vygotsky + McGonigal + Mezirow + Knowles + Pink + Gardner + Wiggins + Etc.)

Education 3.0: Embracing Technology to Jump the Curve
Jeff Borden, Pearson, September 24, 2013

- Opportunities for creativity
- Outcomes
- Big data visualization
- Personalization
- On-demand reports
- Machine learning (technology used to empower)
Creativity

- Creative Person (look for traits; e.g., visionary type)
- Creative Process (looking at stages, steps, actions, behaviors)
- Creative Product (looking at composition, design, innovation, fitness, worthiness)
- Creative Press (look at environment, climate, place)

What's unique about these 2 people?

What does Google's 20 percent time policy have to do with Montessori?

Sergey Brin and Larry Page's innovation-friendly office culture (beyond the famous free food, there's the company's "20 Percent Time," which encourages engineers to spend a fifth of their time pursuing whatever projects ignite their interest) has created...AdWords, Google News, Google Maps, Google Earth, and Gmail.

September 17, 2012
Education 2022: A 360 Degree View
Ten predictions of 2022
John Mayerhofer & Alex Zhu, SAP Training & Educ.

1. Learner-Driven
2. Openly Accessible
3. Personalized
4. Social
5. Ubiquitous
6. Holistic
7. Teaching Redefined
8. Policy Redefined
9. Industry Engaged
10. Achievement Redefined

From Tinkering to Tottering to Totally Extreme Learning...

Tinkering

"I'm a thinker, therefore I tinkered!"
**Tinker #1.**
Supplemental Lectures (e.g., Academic Earth)

**Tottering**

**Totter #1.**
Global Experts via Web Conference
Serious Gaming Institute, Coventry, UK and Leonardo Tosi, Florence, Italy

**You Want Totally Extreme?**
Apple’s new ‘spaceship’ campus: What will the neighbors say?, Doug Gross, CNN, May 22, 2012

**Totally Extreme #1.**
iPod Learning from MIT OCW
(e.g., Wendy Ermold, University of Washington)

**Totally Extreme #2.**
Blogging Field Archaeology Research
(e.g., Lily Henry Roberts, UCLA digging in Hope, BC, Stō:lō First Nation people from 12,000 years ago)
Totally Extreme #5. Online Learning Polyglots

Timothy posts videos of himself speaking several languages on YouTube.

Where are we headed?

1. Mobile Video Connections to Experts and Friends

2. Expert Access from Our Watches

3. Interactive Globes (e.g., NY Times Interactive Photo Globe)

Who is Content Now?

Website: www.Extreme-Learning.com
Slides at: TrainingShare.com
Book: http://worldisopen.com/
Dr. Curt Bonk – CJBonk@Indiana.edu