Education 20/20:
Visions of Our Changing Learning World!

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Talk Overview
1. Education 20/20 and PBL
2. New Roles of the Instructor (for PBL?)
3. First and Last Principles of Instruction (for PBL?)
4. Artificial Intelligence vs. Intelligence Augmentation
5. Megatrends of Learning: Engagement, Access, and Customization (30 ways that learning is changing...)
6. Future Trends and Ideas

(Circa Confucius 551–479 BCE)

What happens to sleeping students?

Merrill’s First Principles of Teaching/Instruction
http://travelinedman.blogspot.com/2011/05/bonks-last-principles.html
Education 20/20 (Links to PBL?)

1. Instructor as Credit Manager

2. Instructor as Counselor

3. Instructor as Consultant
4. Instructor as Conductor

5. Instructor as Course Ambassador

6. Instructor as Curator

7. Instructor as Concierge

8. Instructor as Camping Trip Guide

Bonk’s Last Principles of Teaching/Instruction (The PBL Instructor?)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
http://www.applicadthai.com/articles/education-4-0/
1. The Principle of Flexibility

2. The Principle of Convenience

3. The Principle of Collegiality

4. The Principle of Cheerfulness and Optimism

5. The Principle of High Expectations

6. The Principle of Choice and Options
7. The Principle of Empowerment and Autonomy

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

8. The Principle of Support and Feedback

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

9. The Principle of Spontaneity

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

10. The Principle of Organization

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

11. The Principle of Sharing

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

12. The Principle of Nontraditional Learning

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
13. The Principle of Passion and Inspiration
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

14. The Principle of Relevance and Meaningfulness
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

15. The Principle of Trial and Error (i.e., it is ok to fail)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

16. The Principle of Expanded Resources
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

17. The Principle of Human Connectedness
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

18. The Principle of Cognitive Apprenticeship
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
19. The Principle of Purpose and Vision

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

“One Purpose”

20. ??? (what is missing)

http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

Learning is Changing...

Poll #1: Remember Education 1.0?

1728: 1st correspondence course advertised Boston (learn shorthand from Caleb Phillips thru weekly mailed lessons)
The First University Correspondence Course
(University of London, External Program, 1858)
1728–1990s – Generally postal system based

Fast Forward 200 Years...

MOOC, Meet MORC (Massive Open Radio Course)
WHA, UW Madison, College of the Air, 1933,
Vocational Training dedicated to Agriculture,
and later Home Economics and Typing (On Wisconsin, Fall 2014)

Poll #2: Fast Forward 50 more Years...

Do you remember education 2.0?
Poll #3: Do you really remember what was to be education 2.0?

Fast Forward 30+ More Years…
"Anyone can now learn anything from anyone at any time."

Education 3.0...
"In Education 3.0, classrooms would move away from lectures, such as this one, to having class time be spent on discussions and projects, using digital technology."
(Per Wikipedia: https://en.wikipedia.org/wiki/Education_3.0)

Now What is Education 4.0?
"Innovation-producing education. Learn more in: Development of Individual Agency within a Collaborative, Creative Learning Community"
http://www.api-global.com/dictionary/education-40/41755
https://thinc.in.th/engadmission/education4.html (Chula Engineering)

January 14, 2016
The Fourth Industrial Revolution:
What it means, how to respond
Klaus Schwab, Founder and Executive Chairman, World Economic Forum
http://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/
April 13, 2016
The Fourth Industrial Revolution: What it means, how to respond
Klaus Schwab, Founder and Executive Chairman, World Economic Forum
https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/
http://www.tubechop.com/watch/8280981

August 13, 2016
ST Future Economy Roundtable: Is Asia ready for the Fourth Industrial Revolution?
The Straits Times
http://www.straitstimes.com/asia/is-asia-ready-for-the-fourth-industrial-revolution
“It’s quite clear that the established models of education have to change and adapt to the new environment.”

August 17, 2016
Research: 3D Printing Market to Double by 2020
Joshua Bolkan, Campus Technology

June 7, 2016
Teaching refugees how to code
CNN Money

June 20, 2016
Coursera on a Mission to Help Refugees
Lauren Camera, US News and World Report

September 21, 2016
Udacity Unveils Nanodegree Program for Self-Driving Car Engineers
Sri Ravipati, Campus Technology
February 9, 2017
More black and Latino students learn to code as Code.org classes swell
Jessica Guynn, USA Today

July 28, 2016
Knod
(Per Dr. Michael Mayrath: work with employers to diagnose skills gaps, then provide a platform to deliver content to build those skills in a learn by doing experiences, real projects with employers)
http://www.knod.net/

Poll:
Read any good books lately detailing this shift?

Big Magic:
Creative Living Beyond Fear (2015)
Elizabeth Gilbert
http://www.elizabethgilbert.com/
https://www.ted.com/talks/elizabeth_gilbert_success_failure_and_the_drive_to_keep_creating?language=en

The Innovators:
Walter Isaacson (2014)
http://books.simonandschuster.com/The-Innovators/Walter-Isaacson/9781476708690

Machines of Loving Grace:
John Markoff (2015)
Artificial Intelligence
John McCarthy, Stanford AI Lab

May 19, 2016
Pepper the robot needs U.S. programmers, Marco della Carva, USA Today

March 14, 2016
Artificial Intelligence and Robots
Paul Basken, The Chronicle of Higher Education

Intelligence Augmentation and Amplification
Douglas Engelbart’s “The Mother of All Inventions” (1968)

June 10, 2015
Augmented reality promises ‘superpowers’, and people are listening
The USA Today, Marco della Cava

June 3, 2016
Virtual Reality Lets Med Students Experience What It’s Like To Be 74
Elyse Wanshel, Huffington Post
April 10, 2016

Virtual reality tested by NFL as tool to confront racism, sexism

Marco della Cava, USA Today


One VR diversity demo places the user in the body of an African American woman as a white male avatar gets aggressive mere feet away. (In one Stanford VR demo, subjects are made to feel what is like to be homeless, as in this scene where the user is transported into the body of a woman riding the bus with a few possessions.)

Knowledge Navigator (1987)

Apple Computer

http://www.youtube.com/watch?v=hb4AzF6wEoc

October 14, 2011

Siri (co-founder Tom Gruber)

http://www.imore.com/siri

May 9, 2016

Personal Digital Assistants (PDA)

Personal digital assistants are on the rise (and they want to talk)

USA Today, Edward Baig

(i.e., Google codename of “Chirp”), Elizabeth Weise, USA Today

The World is Open:

How Web Technology Is Revolutionizing Education

The World is Open
The Evolution of E-Learning (All 7 year cycles)

Phase IV, 2015: THE AGE OF PERSONALIZATION.

Other prior significant e-learning dates:
1988: FIRST ONLINE COURSE, LINDA HARASIM, UNIV. OF TORONTO
1987: HYPERCARD FIRST SHIPPED.

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January 15, 2016
Wikipedia is 15!
Scott McLemee, Inside Higher Ed


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April 4, 2016
MIT OpenCourseWare is 15!
http://ocw.mit.edu/about/15-years/

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August 6, 2016
The Web is 25!
Happy (sort of) birthday, World Wide Web,
Erica Fink and Jonathan Tortora, CNN Money (Tech)

http://info.cern.ch/ (First website)
http://info.cern.ch/hypertext/WWW/TheProject.html

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1971
Email is 35 years old!
Raymond Tomlinson, inventor of modern email, dies, USA Today (March 7, 2016)

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Thirty Ways Learning is Changing...
(i.e., it's more informal, video-based, ubiquitous, collaborative, self-directed, global, mobile, open, massive, etc.)
Learning is More Social

February 7, 2017 (Engagement)
Learning is More Social
YouTube takes on Facebook with mobile live
Jefferson Graham, USA Today

August 23, 2016 (Engagement)
Learning is More Visual
e.g., reef videoconferencing
(Great Barrier Reef, Australia)

Learning is More Adventurous
May 7, 2015 (Engagement)
Learning is More Adventurous
Aaron Doering, Chasing Seals, TEDx
http://chasingseals.com/
https://twitter.com/chasingseals

July 22, 2016 (Engagement)
Learning is More Game-like
When Pokémon Goes to Campus: The Good, the Bad, and the Ugly
Gabriel Sandoval, Chronicle of Higher Education
http://chronicle.com/article/When-Pokemon-Goes-to-Campus-The-Good-the-Bad-and-the-Ugly/237219/?cid=trend_au&elqTrackId=c60af7ea6da640ec98d260eb7af9ef66&elq=95ace8ab293b4a5ead1a353c0e6f0dfc&elqaid=9961&elqat=1&elqCampaignId=3667

April 2, 2015 (Engagement)
Learning is More Immersive
The Quest to Put More Reality in Virtual Reality,
Review: Samsung rises to challenge with Galaxy S6 and S6 Edge,
Edward Baig, USA Today

February 15, 2017 (Engagement)
Learning is More Synchronous
Shindig, Future Trends Forum, Bryan Alexander
https://bryanalexander.org/the-future-trends-forum/
http://www.shindig.com/
http://events.shindig.com/event/ftf-anniversary

February 17, 2016 (Engagement)
Learning is More Mobile
World’s Cheapest Smartphone at $3.67
https://m.facebook.com/hashtag/launched?refid=52&__tn__=%2As

September 7, 2016 (Engagement)
Learning is More Mobile
Learning Apps - Personalized Interfaces for Performance
Elliott Masie’s Learning TRENDS; trends@masie.com
Personalized for an employee based on their development goals, competency gaps and changing skill/information matrix in the workplace. A Learning App could provide a just in time set of context informed connections, coaching sets and real time feedback.
Learningpool: https://www.learningpool.com/services/apps
Want “FREE” engagement?
How about “Adding Some TEC-VARIETY”?
http://tec-variety.com/

How Learning is Changing:
Mega Trend #2. Pervasive Access

- informal
- global
- open
- video-based
- synchronous
- ubiquitous
- online
- direct from experts
- immediate

July 21, 2016 (Access)
Learning is More Ubiquitous
Facebook’s Aquila drone completes first test flight
Jessica Guynn, USA Today

An aerial view of Aquila, a autonomous aircraft Facebook is designing to deliver mobile broadband networks to isolated people (mission to fly 60,000 above Earth for up to 3 months at a time; current record for solar-powered unmanned flight is 2 weeks). (Photo: Facebook)

August 1, 2016 (Access)
Learning is More Ubiquitous
363 by Idea Group; Study Café
Meeting Place; Idea Space (Seoul, Korea)

February 22, 2017 (Access)
Learning is More Informal
Digital citizenship lessons from a 9-year-old with 18,000 Twitter followers, Alan November, eSchool News

August 5, 2015 (Access)
Learning is More Informal
Shubham Jaglan (10 years old) Overwhelmed by "Dream" Return Home After Double World Championship
Disha Chopra, NDTV Sports
June 13, 2016 (Access)
Learning is More Free and Open
Nine-Year-Old Anvitha Vijay is the Youngest Developer at WWDC (age 9)
(Apple Worldwide Developers Conference), Gadgets

May 4, 2016 (Access)
Learning is More Free and Open
This Mongolian Teenager Aced a MOOC
(140,000 people take the MIT MOOC on Circuits and Electronics, 1 of 300 to get a perfect score)
(The Chronicle of Higher Education, Jeffrey R. Young)

May 19, 2016 (Access)
Learning is More Free and Open
From MOOC to bootcamp to MIT
(Jin Wu—from MITx to MIT Global Entrepreneurship Bootcamp to master's student)
(MIT News, Office of Digital Learning)

September 28, 2016 (Access)
Learning is More Free and Open
Bookshare, An accessibility online library for people with disabilities
(Bookshare)

May 4, 2016 (Access)
Learning is More Video-Based
What I Learned at the ASU GSV Summit
(Kenneth Green, Inside Higher Ed)

September 14, 2015 (Access)
Learning is More Video-Based
Credit for Watching a TED Talk? A new platform aims to help employers track casual learning
(Chronicle of Higher Education, Jeffrey R. Young)
May 14, 2016 (Access)
Learning is More Immediate...
Mastodon bones offer clues of earliest humans in North America, Faith Karimi, CNN
Abstract: http://advances.sciencemag.org/content/2/5/e1600375
Full Article: http://advances.sciencemag.org/content/2/5/e1600375.full
Supplemental materials (PDF): http://advances.sciencemag.org/content/suppl/2016/05/10/2.5.e1600375.DC1
PDF: http://advances.sciencemag.org/content/advances/suppl/2016/05/10/2.5.e1600375.DC1/1600375_SM.pdf

November 19, 2015 (Access)
Learning is More Immediate...
New daddy longlegs named after 'Lord of the Rings' character Smeagol, Mary Bowerman, USA Today

June 20, 2016 (Access)
Learning is More Direct from Experts
(e.g., The Expert Café)
http://expertscafe.com/

How Learning is Changing:
Mega Trend #3. Customization
massive
gself-directed
blended
flipped
communal
personal
competency-based
on-demand
modifiable
modular

September 7, 2016 (Customization)
Learning is More Comfortable
The Future of Collaboration Spaces Encompasses Video Interactive, Mobil, Julie Johnston, IU, Campus Technology

In the Indiana University Media School lobby, a large display will showcase student work and provide interactive sessions. (photo by Allen Major/The Media School © Indiana University)
January 20, 2016 (Customization)
Learning is More Blended
Universities tap growth of craft beer, offer classes, Chicago Tribune

February 16, 2017 (Customization)
Learning is More Communal
Building Global Community, Marc Zuckerberg, Facebook

May 20, 2016 (Customization)
Learning is More Massive
agMOOCs (India)
http://www.agmoocs.in/

April 20, 2015 (Customization)
Learning is More Massive
250 MOOCs and Counting: One Man’s Educational Journey, Chronicle of Higher Education
http://chronicle.com/article/250-MOOCs-Counting-One/229397/?cid=at
If the MOOC movement has faded, nobody told Jima Ngei. Mr. Ngei, who lives in Port Harcourt, Nigeria, has completed and passed 250.

September 15, 2015 (Customization)
GROOCs are MOOCs for Social Impact
Social Learning for Social Impact, edX
Join the world’s first GROOC – a MOOC for groups – to collaborate with others globally and create social change.
https://www.edx.org/course/social-learning-social-impact-mcgillx-groocx

December 25, 2016
By The Numbers: MOOCS in 2016
Dhawa Shah, Class Central
January 13, 2016 (Customization)
Degree gets you a tech job — or your money back
Marco della Cava, USA Today
http://www.usatoday.com/story/tech/news/2016/01/13/degree-gets-tech-job-or-your-money-back/78703230/

July 28, 2016 (Customization)
Coursera Specializations email
Starting Monday August 1st: 9 Top Specializations

MOOCs and Open Education
Around the World
http://routledge-ny.com/books/details/9781138807419/

July 1, 2015 (Customization)
Chapter 14: Creating a Temporary Spontaneous Mini-Ecosystem through a MOOC
Paul Kim and Charlie Chung, Stanford University
Figure 2. Twitter thread announcing the MOOC

July 14, 2016 (Customization)
Chapter 15: Learning About MOOCs by Talking to Students
Charles Severance, Univ. of Michigan
Anuar Lequerica, Class Central
August 24, 2016

K-MOOCs (and ocMOOCs and hMOOCs)

Revolutionizing online education

Professor creates courses tailored to cultural differences

Korea JoongAng Daily, Bong-Moon Kim


http://www.kmooc.kr/

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January 3, 2017

College is Over

Roger Schank, LinkedIn


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January 30, 2017

1. Professor Einstein PDA’s

Professor Einstein, an educational Wi-Fi connected robot is on display at the Hannam Robot display during the opening day of Consumer Electronics Show 2017. (Photo: Robert Hanashiro, USA TODAY)


http://www.usatoday.com/story/tech/2017/01/30/robotic-barista-nnow-serving-really-fast/95888780/

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February 27, 2017

2. World Knowledge Refreshment Stations

http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

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February 27, 2017
3. Robot Collaborators/Partners
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

February 27, 2017
3. Three Part Resumes/CV’s
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

February 27, 2017
3. Global Learning Partner or PBL Team Selection Walls
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

September 2, 2016
5. MOOC Graders and Tutors
Introduction to Philosophy: God, Knowledge and Consciousness
($300 USD for an identity-verified certificate)
Carl Straumsheim, Inside Higher Ed
https://www.insidehighered.com/news/2016/09/02/massachusetts-
institute-technology-experiments-instructor-grading-
massive-open-
https://www.edx.org/course/introduction-philosophy-
god-knowledge
mitx-24-00x-1#.VKsgwWTF-0c

May 4, 2016
6. MOOC Spirituality
MOOC 4.0: The Next Revolution in Learning & Leadership, Otto Scharmer, Huffington Post
https://www.huffingtonpost.com/otto-
scharmer/mooc-40-the-
next-revolution-in-
learning-and-leadership_b_7209606.html

7. Rise of Super E-Mentors
8. Café Classroom and Café Connectedness

9. Instructional Designer Morphs into Learning Environment Engineer

10. The Age of Personalization

The new “Four Horsemen” of the Apocalypse: Quality, Copyright, Plagiarism, and Assessment...

We are entering a jumping off point...
(South University of Science and Technology of China, Wednesday June 10, 2015)

Things are heating up for PBL!
Education 20/20 is coming within reach!

Poll #10:
Who is now interested in Education 20/20...?

END OF COURSE EXAMS?
I SHALL PASS!

Remember for Education 20/20 to impact PBL:
“I cannot do this alone.”
“"I cannot do this alone.”
“"I cannot do this alone.”
“"I cannot do this alone.”

Any Questions or Comments?
Slides at: TrainingShare.com
Papers: PublicationShare.com
Free book: http://tec-variety.com/
Email: curt@worldisopen.com