**Education 20/20: Visions of a New Learning World**

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**Talk Overview**
1. Education 20/20 and the Role of the Instructor
2. First and Last Principles of Instruction
3. Fifteen Education 20/20 Activities
4. Read Any Good Books Lately?
5. Megatrends of Learning: Engagement, Access, and Customization (30 ways that learning is changing...)
6. Overcoming Resistance

**Circa Confucius 551–479 BCE**

What happens to sleeping students?

If you don't study, you shall not pass!
Education 20/20

From Instructor as Credit Manager and Court Room Judge

1. Instructor as Counselor

2. Instructor as Consultant

3. Instructor as Conductor

4. Instructor as Course Ambassador
5. Instructor as Curator

6. Instructor as Concierge

7. Instructor as Camping Trip Guide

8. Instructor as Cultivator

20 New Roles of the Instructor
Merrill’s First Principles of Teaching/Instruction

Integration  Activation
Problem/Task
Application  Demonstration

The First Principles Four Phase Cycle of Instruction

February 29, 2016
Instructional Design:
Demand grows for a new breed of academic
The Chronicle of Higher Education, Dan Berrett
http://chronicle.com/article/Instructional
Design/235425

April, 2016
Instructional Design in Higher Education,
Gates Foundation and Intentional Futures

Instructional Designer Morphs into Learning Environment Engineer

Bonk’s Last Principles of Teaching/Instruction

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
August 8, 2017
Professor's plan to let students grade themselves gets an F
Paul LeBlanc, CNN

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
https://travelinedman.blogspot.com/2011/05/principles-of-instruction.html

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

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

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

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

18. The Principle of Cognitive Apprenticeship
https://travelinedman.blogspot.com/2011/05/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

Bonk’s 20 “Last” Principles of Instruction
(LAST = Learning Activation System Template)
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

- Flexibility
- Support and Feedback
- Nontraditional Learning
- Collegiality
- Spontaneity
- Passion and Inspiration
- Organization
- Trial and Error (i.e., it is ok to fail)
- Sharing
- Relevance and Meaningfulness
- Human Connectedness
- #20 ???
- Choice and Options
- Empowerment and Autonomy
- Cognitive Apprenticeship
- Café Classroom and Café Connectedness

Fifteen Education 20/20 Activities…
1. Just in Time Teaching (online warm-up activities)
   - Assign a problem before class.
   - Evaluate solutions.
   - Change class based on results.

2. Just-In-Time Syllabus
   (Raman, Shackelford, & Sosin) http://ecedweb.unomaha.edu/jits.htm
   Syllabus is created as a “shell” which is thematically organized and contains print, video, and web references as well as assignments. (Goals = critical thinking, collab, develop interests)
   e.g., To teach or expand the discussion of supply or elasticity, an instructor might add new links in the Just-in-Time Syllabus to breaking news about rising gasoline prices.

3. Online Resource Library (ORL) or Library Day
   (e.g., The Thompson Library at Ohio State Univ.)

4. Reflection Papers: Job Application and Trend Papers
   - Have students write papers about emerging trends in the field.
   - Have them select topics from a list or suggest topics. Give sample papers.
   - Perhaps have them present their trend and job applications papers to class.

5. Online Scholar Debate Panel or Symposium
   - Instead of role play, form online debate panels or symposia on particular topics.
   - Set the time for each debate or open it up for an entire week.
   - Or bring in expert guests for the debate or panel.

6. Online Role Play Personalities
   - List possible roles or personalities (e.g., coach, questioner, optimist, devil’s advocate, etc.)
   - Sign up for different role every week (or for 5-6 key roles during semester)
   - Perform within roles—try to refer to different personalities
7. Poster Sessions and Gallery Tours
- Have students create something—flowchart, timeline, taxonomy, concept map.
- Have half of the students present for 15-20 minutes and then reverse roles.
- Post these in the course management system.
- Discuss, rate, evaluate, etc.

8. 99 Second Quotes and Set Time Presentations
- Everyone brings in a quote that they like from the readings
- You get 99 seconds to share it and explain why you choose it in a sync chat
- Options: Discussion wrapped around quote

October 26, 2016
8. Student Exploration Video
R511, Merge Basdogan, Self-Regulated Learning (6:08)
https://www.youtube.com/watch?v=G1FpopGmk1c&feature=youtu.be#t=3.346833

October 26, 2016
9. Student Created Documentaries
R678 Final Projects, April 2016
The Making of an Adventurer (video), Troy Cockrum
https://www.youtube.com/watch?v=ew6e7Chd9I8

October 26, 2016
10. Student Created Marketing and Explanatory Videos
R511, Kai Westerfield, Jennifer Blankenship, And Colbi Lehman,
Online Degree Programs, (11:54) Go Animate

October 26, 2016
- 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.
12. Volunteer Technology Demos  
(Bonk, 1996)  
- Take students to a computer lab.  
- Have students conduct a technology demonstration that relates to something from the class (replaces an assignment).  
- Include handout  
- Debrief

13. Best 3 Activity  
(Thiagi, personal conversation, 2003)  
- After a lecture, have students decide on the best 3 ideas that they heard (perhaps comparing to a handout).  
- Work with another who has 3 as well and decide on best 3 (or 4).  
- Those pairs work with another dyad and decide on best 3 (or 4).  
- Report back to class.

14. One Visual Exercises  
- Tell students to bring in one visual representing their outside readings.  
- Have students become the instructors using that visual.

15. Goals and Expectations Charts  
(L = Cost, L = Risk, M = Time)  
- Write short and long term goals down on goal cards and post to discussion forum.  
- Write 4-5 expectations for this session.  
- Expectations Flip Chart (or online forum):  
- Debrief.

More in this free book...!  
http://tec-variety.com/  
Clearly...  
Learning is Changing!
Poll #1: Do you remember the days before e-learning?

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

Education 3.0...Education 20/20

"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

Poll: #1. Read any good books lately detailing this shift?

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

Motivation 3.0
- Freedom, challenge, purpose
- Creative, interesting, etc.
- self-directed work
- Intrinsic motivation
- Life as play and possibility
- Engagement and mastery
- Autonomy

2. Grit (2016):
The Power of Passion and Perseverance
Angela Duckworth
   Elizabeth Gilbert
   http://www.elizabethgilbert.com/

   Scott Barry Kaufman & Carolyn Gregory

   Adam Grant
   Podcast 2. Advice from Adam Grant: Look for “disagreeable givers” (March 2, 2016)

   Carol Dweck
   http://mindsetonline.com/index.html
   - 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?

7. Creativity, Inc. (2014)
   Ed Catmull, President of Pixar Animation and Disney Animation
   http://www.creativityincbook.com/

8. Creativity, Inc.
   Ed Catmull, President of Pixar Animation and Disney Animation
   http://www.creativityincbook.com/
   - Give a good idea to a mediocre team, and they will screw it up. But give a mediocre idea to a great team, and they will either fix it or come up with something better.
   - If you don’t strive to uncover what is unseen and understand its nature, you will be ill prepared to lead.
   - It’s not the manager’s job to prevent risks. It’s the manager’s job to make it safe for others to take them.
### Makers: The New Industrial Revolution (DIY Culture)

- **Chris Anderson (2012)**
- **http://www.inventtolearn.com/**

<table>
<thead>
<tr>
<th>People make products (and from home)</th>
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<tbody>
<tr>
<td>Technology (e.g., 3-D printing) makes us all manufacturers</td>
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<tr>
<td>Instant connections to potential customers</td>
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<tr>
<td>Hold up things you personally design</td>
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<tr>
<td>Desktop fabrication</td>
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<tr>
<td>Do-it-yourself (DIY) industry</td>
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### 10. Invent to Learn: Making, Tinkering, and Engineering in the Classroom

- **Sylvia Libow Martinez & Gary Stager (2013)**
- **http://www.inventtolearn.com/**

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<thead>
<tr>
<th>Play</th>
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<tbody>
<tr>
<td>Passion</td>
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<tr>
<td>Purpose and life goals</td>
</tr>
<tr>
<td>Open cultures of innovation and interdisciplinary problem solving</td>
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<tr>
<td>Collaboration</td>
</tr>
<tr>
<td>Intrinsic motivation</td>
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</tbody>
</table>

### 11. Creating Innovators

- **Tony Wagner (2012)**
- **http://creatinginnovators.com/**
- **Most Likely to Succeed (2015): Preparing Our Kids for the Innovation Era**
- **Tony Wagner and Ted Dintersmith**
- **http://www.tonywagner.com/**

<table>
<thead>
<tr>
<th>Find your zone (deep in the throes of exploration and personal passion)</th>
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<tbody>
<tr>
<td>Think differently (make fresh connections and analogies; avoid groupthink)</td>
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<tr>
<td>Do something, develop your creative ideas</td>
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<tr>
<td>Use your imagination, play with ideas</td>
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<tr>
<td>Free and open exchange of ideas</td>
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<tr>
<td>Encourage expression of personal ideas/feelings</td>
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This is a new age of learning and instruction...!

Poll #2:
Do you really remember those days of the lecture?

YOU SHALL
NOT PASS

The World is Open:
How Web Technology Is Revolutionizing Education

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

July 11, 2017
Going 'phigital'? 4 things schools need to know about Generation Z
Todd Kominiak, TrustEd
May 15, 2017
3 must know’s about the rising "phigital" student—and why their impact is enormous,
Meris Stansbury, eCampus News
https://www.ecampusnews.com/campus-administration/education-gen-z-phigital-student/
30+ Ways Learning is Changing: The Mega Trends

How Learning is Changing: Mega Trend #1. Learner Engagement

August 17, 2016
Learning is More Hands-On
Research: 3D Printing Market to Double by 2020
Joshua Bolkan, Campus Technology

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

May 31, 2017
Learning is More Digital and Resource Rich
Enticing Students to Read Again
Ellen McCracken, The Chronicle of Higher Education
https://digitaldubliners.com/about/

February 27, 2017 (Engagement)
Learning is More Immersive
Augmented and Virtual Reality Spending to Double in 2017, Sri Ravipati, THE Journal

Worldwide: “forecasts the AR/VR market to reach $13.9 billion in 2017—up 130.5 percent from the $6.1 billion spent in 2016. Furthermore, AR/VR spending is expected to accelerate over the next several years, achieving a compound annual growth rate (CAGR) of 198 percent over the 2015-2020 forecast period and reaching $143.3 billion in 2020.”
July 19, 2017
HoloLens Assists in Live Surgery
Tommy Palladino, Next Reality

Numerous examples exist of doctors and surgeons using HoloLens to plan surgeries. The device has even been used to view reference images during a procedure and stream it to a remote audience. Until recently, it has not been used to augment the surgeon’s view of the patient during a live surgery.


May 18, 2017
Learning is More Immersive
Google Cardboard

Google Expeditions Adds Augmented Reality for Classrooms
Sr. Headline, The Journal

Video #1: 1:09: http://curtbonk.com/hololens.html
Video #2: 1:37: http://curtbonk.com/hololens2.html

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Video #2: 1:37: http://curtbonk.com/hololens2.html

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

Pokémon Go players converged last week on the U. of Nebraska at Lincoln’s Memorial Stadium, which officials had opened to the animated monster hunters. The hit augmented-reality game has prompted many colleges to jump on the bandwagon.

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


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

Samsung is hoping to have 10,000 apps by the time the Gear S3 launches this fall.

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

Knowledge Navigator (1987)
Apple Computer

Learning is More Online (Access)
June 15, 2014
Starbucks offers workers 2 years of free college, CNN Money, Gregory Wallace (from Arizona State online programs)

Learning is More Online (Access)
November 22, 2016
Indiana University, Online Course Enrollments

Learning is More Online (Access)
May 2, 2017
‘Volatile’ but Growing Online Ed Market, Carl Straumsheim, Inside Higher Ed
2016
Enrollment Report 2016, WCET

August 1, 2016 (Access)
Learning is More Ubiquitous
363 by Idea Group; Study Café Meeting Place; Idea Space (Seoul, Korea)
http://363.co.kr/wp/?page_id=244
http://363.co.kr/wp/?bw_gallery=study-cafe_11

May 7, 2014 (Access)
Learning is More Global
CNA - Speaking Exchange (video chats)
CNA and FCN Brazil and the CNA Exchange are launching the Speaking Exchange project, which connects CNA students in Brazil with Americans living in retirement homes.

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

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

May 3, 2017
4 out of 5 Companies Have Hired a Coding Bootcamp Graduate
Sri Ravipati, Campus Technology
http://www.campustechnology.com/articles/2017/05/03/4-out-of-5-companies-have-hired-a-coding-bootcamp-graduate.aspx
April 6, 2017 (Access)
Learning is More Free and Open
Indiana University’s eText program saves students over $3.5 million (Program makes digital textbooks cost less and do more, grows 56 percent), Indiana University Newsroom

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

July 2016
I. Elaine Allen and Jeff Seaman, Babson Survey Research Group

May 14, 2016 (Access)
Learning is More Immediate…
Mastodon bones offer clues of earliest humans in North America, Faith Karimi, CNN

May 9, 2017 (Access)
Learning is More Immediate…
Meet Zuul, the new dinosaur species named after 'Ghostbusters' demon
Traci Watson, USA Today

March 27, 2017 (Access)
Learning is More Free and Open
Beyond Free: Harnessing the resonant value in open and collaborative practices for the public good
David Porter, CEO, eCampus Ontario, Open Education Ontario Summit

May 9, 2017 (Access)
Learning is More Immediate…
Meet Zuul, the new dinosaur species named after 'Ghostbusters' demon
Traci Watson, USA Today

April 6, 2017 (Access)
Learning is More Free and Open
Indiana University’s eText program saves students over $3.5 million (Program makes digital textbooks cost less and do more, grows 56 percent), Indiana University Newsroom
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

May 12, 2017 (Customization)
Learning is More Modifiable
The Future of Collaboration Spaces Encompasses Video Interactive, Mobile, Julie Johnston, IU, Campus Technology

July 17, 2017

Social spaces, like this one in an interdisciplinary-science building at Arizona State U., don’t qualify for federal reimbursement of research-overhead costs. So now “we don’t build any single-purpose space,” says the university architect.

October 14, 2011
Learning is On Demand
Siri (co-founder Tom Gruber)
http://www.imore.com/siri

May 9, 2017 (Customization)
Amazon Echo Show brings chatty Alexa to a two-way, video touchscreen
Edward C. Baig and Elizabeth Weise, USA Today
https://www.usatoday.com/story/tech/reviews/2017/05/09/amazon-echo-show-touchscreen-video-alexa/101448844/
**January 20, 2016 (Customization)**

**Learning is More Blended**

Universities tap growth of craft beer, offer classes, Chicago Tribune


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**March 23, 2017 (Customization)**

**Learning is More Personal**

Arizona State U Launches Open, Adaptive Lessons on Space Exploration

Rhea Kelly, Campus Technology


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**May 20, 2016 (Customization)**

**Learning is More Massive**

agMOOCs (India)

[Link](http://www.agmoocs.in/)

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**April 20, 2015 (Customization)**

**Learning is More Massive**

250 MOOCs and Counting: One Man’s Educational Journey, Chronicle of Higher Education


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**December 25, 2016**

**By The Numbers: MOOCS in 2016**

Dhawa Shah, Class Central

[Link](https://www.class-central.com/report/mooc-stats-2016/)

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**December 25, 2016**

**Class Central**

[Link](https://www.class-central.com/report/mooc-stats-2016/)

- 58M Students
- 700+ Universities
- 6850 Courses
A Life of Happiness and Fulfillment
Indian School of Business, Rajagopal Raghanathan
https://www.class-central.com/mooc/a-life-of-happiness-and-fulfillment

edX Expands MicroMasters Programs With Data Science (“nanodegrees”) Digital Leadership and More, Sri Ravipati, Campus Technology

edX Expands MicroMasters Programs With Data Science, Digital Leadership and More

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

Creating a Temporary Spontaneous Mini-Ecosystem through a MOOC
Paul Kim and Charlie Chung, Stanford University
Figure 2. Twitter thread announcing the MOOC

Learning About MOOCs by Talking to Students
Charles Severance, Univ. of Michigan
Anuar Lequerica, Class Central

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

30+ Ways Learning is Changing: Recapping the Three Mega Trends: Engagement, Access, and Customization

Debriefing of Bonk’s Last Principles of Instruction and New Instructor Roles

Overcoming the Resistance Movement

1. Incremental Change

2. Shared Success Stories and Best Practices
3. Modeling

4. Mentoring and Coaching

Poll #3: Does all this give you a headache?

Not Me...I am happy! and...
My minions are happy!

Poll #4:
Who is now interested in Education 20/20...?

END OF COURSE EXAMS?
I SHALL PASS!
We are entering a jumping off point…
(South University of Science and Technology of China, Wednesday June 10, 2015)

Things are heating up...

Education 20/20 is coming within reach!

Remember for Education 20/20 to make an impact:
"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."

Activity #1:
Share Three Words from this Session!

Any Questions or Comments?

Slides at: TrainingShare.com
Papers: PublicationShare.com
Free book: http://tec-variety.com/
Email: curt@worldisopen.com