Technology Today, Technology Tomorrow: Might Learning Evolutions lead to Learning Revolutions?

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Talk Overview
1. Technology Yesterday
2. Technology Today
   30 ways learning is changing...
   Megatrends of Learning:
   a. Engagement
   b. Access, and
   c. Customization
3. Technology Tomorrow and Future Trends

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

Phase III, 2008: The Age of MOOCs (First MOOC offered).
Phase IV, 2015: The Age of Personalization.

Other prior significant e-learning dates:
1985: First Online Course, Linda Harasim, UNI of Toronto
1967: HyperCard first shipped.

April 23, 2015
Are We Living In An eLearning Revolution?
Beth Wisch eLearning Industry
https://elearningindustry.com/living-elearning-revolution

April 30, 2017
'Those Jobs Are Gone'
Steve Kolowich, The Chronicle of Higher Education


November 28, 2017
Automation could kill 73 million U.S. jobs by 2030
Paul Davidson, USA Today

March 29, 2017

Every industrial robot takes up to 6 jobs, study finds

Steve Goldstein, MarketWatch


Video: .1 to .49: http://curtbonk.com/futureandroid3.html
Video: 0.01 to .49: http://curtbonk.com/futureandroid4.html

June 21, 2017

The Ed Tech Market Map: 90+ Startups
Building The Future Of Education

CB Insights, Research Briefs


Part 1: Technology Yesterday

Poll: Remember Education 1.0

1728: 1st correspondence course advertised Boston

The First University Correspondence Course
(University of London, External Program, 1858)

1728-1990s – Generally postal system based

Fall 2014, On Wisconsin

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

Winky Dink and ... Bill Gates?,
Bob Greene, March 31, 2013, CNN


A girls uses her "Winky Dink" drawing kit to draw on a TV screen as they watch the 1950s kids program.
Correspondence, Mail, Satellite, Radio, and TV Courses
Charles Wedemeyer, University of Wisconsin

How Might Video Games Be Good for Us?
Jane McGonigal, October 15, 2012, BQO
https://www.bigquestionsonline.com/content/how-might-video-games-be-good-for-us

Artificial Intelligence
John McCarthy, Stanford AI Lab
http://www.amazon.com/Machines-Loving-Grace-Common/dp/0062266683

Intelligence Augmentation and Amplification
Douglas Engelbart’s “The Mother of All Inventions” (1968) Augmentation Research Center (ARC)
Intelligence Augmentation and Amplification
http://www.amazon.com/Machines-Loving-Grace-Common/dp/0062266683

June 3, 2017
How PLATO changed the World...in 1960
Cait Etherington, ElearningInside News

June 3, 2017 and November 13, 2017
How PLATO changed the World...in 1960
Cait Etherington, ElearningInside News
PLATO—an acronym for Programmed Logic for Automatic Teaching Operations.
Poll: Anyone remember these technologies?

May 10, 2013
10 ed-tech tools of the 70s, 80s, and 90s
eSchool News, Meris Stansbury
http://www.eschoolnews.com/2013/05/10/10-ed-tech-tools-of-the-70s-80s-and-90s/

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

August 6, 2016
The Web is 25!
Happy (sort of) birthday, World Wide Web!, Erica Fink and Jonathan Tortora, CNN Money (Tech)
http://www.eschoolnews.com/2013/05/10/10-ed-tech-tools-of-the-70s-80s-and-90s/

January 15, 2016
Wikipedia is 15!
Scott McLemee, Inside Higher Ed
http://www.insidehighered.com/views/2016/01/15/essay-wikipedias-fifteenth-anniversary

April 4, 2016
MIT OpenCourseWare is 15!
http://www.mit.edu/about/15-years/
Fast Forward 30+ Years...
"Anyone can now learn anything from anyone at any time."

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/generations/you-are-a-phigital-student/

Part II. Technology Today
ARKit lets you create immersive augmented reality experiences on iOS devices. (Photo: Wareable)

30+ Ways Learning is Changing: The Mega Trends
Learner Engagement
Pervasive Access
Customization & Personalization

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

August 31, 2016
Learning is More Mobile
Samsung ticks forward with new Gear S3 smartwatch
Edward C. Baig and Eli Blumenthal, USA TODAY

Samsung Pay on the Gear S3. (Photo: Eli Blumenthal, USA TODAY)
Samsung is hoping to have 10,000 apps by the time the Gear S3 launches this fall.
January 3, 2018
Learning is More Mobile
CES 2018: Your guide to the biggest consumer electronics show
USA Today

The Octopus watch from 3Joy, an icon-based watch for kids to have good habits is on display during CES.

May 15, 2018
Learning is More Mobile
Sony Digital Paper

September 27, 2016
Learning is More Visual
Snapchat’s Spectacles expected to be big hit, Jefferson Graham, USA Today

The company announced a rebrand along with new sunglasses that can record footage. Video provided by Newsy Newswlook

January 2, 2018
Learning is More Visual
5G to AR: Here are 7 technologies to watch in 2018
Edward C. Baig, USA Today

April 22, 2018
Learning is More Visual
Microsoft AI Commercial ft. Common

March 24, 2012
Learning is More Digital and Resource Rich
In South Korean classrooms, digital textbook revolution meets some resistance, Washington Post
April 17, 2018
Learning is More Ubiquitous
Massive work of ‘sentient art’ unveiled at Luddy Hall is also a learning tool for students
Indiana University

July 28, 2016
Knod
Learning is More Hands-on
(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/

September 5, 2017
Learning is More Immersive
Get ready for thousands of augmented reality Apple apps
Jefferson Graham, The USA Today
http://www.knod.net/

May 1, 2018
Learning is More Immersive
3 ways districts can use AR and AI
Justin Anglio, eSchool News
http://www.knod.net/

May 1, 2018
Learning is More Immersive
3 ways districts can use AR and AI
Justin Anglio, eSchool News
http://www.knod.net/

July 19, 2017
Learning is More Immersive
HoloLens Assists in Live Surgery
Tommy Palladino, Next Reality
http://www.knod.net/
May 30, 2017
Learning is More Immersive
Fly above the water with Oracle Team USA in 360

The first 17 seconds: http://curtbonk.com/sailing-17.html
1:14 to 1:54: http://curtbonk.com/sailing-40.html
Whole video: http://curtbonk.com/sailing.html

July 19, 2017
Learning is More Immersive
Modern medicine breathes new life into virtual training

Videos

May 18, 2017
Learning is More Immersive
Google Expeditions Adds Augmented Reality for Classrooms, Sri Ravipati, THE Journal
https://thejournal.com/articles/2017/05/18/google-expeditions-adds-augmented-reality-for-classrooms.aspx
https://www.youtube.com/watch?v=DYqlaMWTVg
27 seconds http://curtbonk.com/thejournal27.html
38 Seconds http://curtbonk.com/thejournal38.html
1: 10: http://curtbonk.com/thejournal.html

March 21, 2018
Chatterbox
Learning is More Global
The overall winner in the competition was Chatterbox, an online language school powered by refugees
http://wearechatterbox.org/

July 21, 2016
Learning is More Pervasive
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)
May 10, 2017
Learning is More Online (Access)
50-year-old Bible college in Colorado Springs to sell campus, switch to online-only instruction, Debbie Kelley, The Gazette

September 21 and November 12, 2017
Learning is More Immediate...
Scientists just discovered the first brainless animal that sleeps
Sara Kaplan, Washington Post

June 14, 2016
Learning is More Video-based
Microsoft to Acquire LinkedIn for $26.2 Billion,
Jay Greene, CNN Money

June 20, 2016
Learning is More Free and Open
Coursera on a Mission to Help Refugees
Lauren Camera, US News and World Report

Remember: "The world is really open to learning"
Learning is More Open
The Fourth Industrial Revolution
http://trainingshare.com/twio-clip.php

A Cassiopea jellyfish rests upside-down on black sand and pulses, rhythmically contracting and relaxing its bell. At night, Cassiopea jellyfish pulse less frequently — a clue that they’re sleeping, researchers report.
(Photo by JanEaster.com)
March 19, 2018
Learning is More Free and Open
Open Textbook Network
Center for Open Education, University of Minnesota
http://research.cehd.umn.edu/otn/

February 27, 2017
Learning is More Self-Directed
The LMS Market is Quickly Losing Ground
Carol Leaman, CLO
https://www.openlearning.com/

January 9, 2017
Learning is More On Demand
Jill Watson, Round Three, Georgia Tech course prepares for third semester with virtual teaching assistants, Jason Maderer, Georgia Tech News Center
http://www.news.gatech.edu/2017/01/09/jill-watson-round-three

March 6, 2018
Learning is More Direct from Experts
By connecting Chinese pupils with North American teachers, Beijing-based platform is building cultural bridges, one online English class at a time. Most Innovative Companies, Fast Company
Interview with VIPKid CEO Cindy Mi
https://www.fastcompany.com/company/vipkid

How Learning is Changing:
Mega Trend #3. Customization

January 2, 2018
Learning is More Personal
5G to AR: Here are 7 technologies to watch in 2018, Edward C. Baig, USA Today
(e.g., Augmented hearing)

The Terribly Thin Conception of Ethics in Digital Technology, David Golumbia, Uncomputing
http://www.uncomputing.org/

Bot teacher that impressed and fooled everyone, Donald Clark, Plan B
http://donaldclarkplanb.blogspot.co.uk/2016/12/bot-teacher-impressed-and-fooled.html

5G to AR: Here are 7 technologies to watch in 2018, Edward C. Baig, USA Today

5/19/2018
July 11, 2016 (Engagement)
Learning is More Personal
Smart Sparrow, Learning Design Studio

Virtual Patients: This is a virtual patient suite developed for exercise physiology that simulates real-life medical procedures and tests including the taking of blood pressure and the monitoring of a patient’s heart rate. These applications have interactive and engaging graphics as well as adaptive feedback.

https://www.smartsparrow.com/case-studies/virtual-patients/

April 8, 2018
Learning is More Personal
Can Artificial Intelligence Make Teaching More Personal?
Goldie Blumenstyk, The Chronicle of Higher Education

A new grading tool called Gradescope — powered by AI and now being used by more than 150,000 educators — offers new standards on the possibilities.

The tool simplifies the grading process without requiring instructors to rely on an essay evaluator or automated essay scorers. Some professors have even come to rely on the tool as a way to make it easier for them to personalize their teaching.


April 8, 2018
Learning is More Personal
What I Learned When My Students Used Google Translate
Diane Loyd, The Chronicle of Higher Education

- I was very surprised by the results. They sent me examples of translations into English from Albanian, Chinese, Kazakh, Russian, and Spanish. The translations from Albanian, Kazakh, Russian, and Spanish were good. They were not perfect, but the mistakes were such that, had I encountered the sentences in a student paper, I would have attributed them to grammatical errors on the part of the non-native speaker of English. This is one of the Spanish examples:

Original Spanish: Si no fuese a la librería, le cobraría por retraso.
- Google Translate’s English translation: If I were you, I’d even charge you for breathing
- Accurate translation: If I were you, I would even charge him for breathing

May 9, 2017 (Customization)
Learning is More On Demand (PDAs)
Amazon Echo Show brings chatty Alexa to a two-way, video touchscreen

At the University of Michigan at Ann Arbor, students in a statistics class last fall had their writing assignments evaluated by an automated text analysis tool.

Several professors who use it say the feedback gave them more insight into how to improve their teaching.

https://www.smartsparrow.com/case-studies/virtual-patients/

April 8, 2018
Learning is More On Demand
What I Learned When My Students Used Google Translate
Diane Loyd, The Chronicle of Higher Education

- In contrast, Google Translate’s English version of a Chinese passage was unintelligible:

Original Chinese: 这是一本非凡的书，他将引领你进入一个充满惊喜的奇妙世界。
- Google Translate’s English translation: This is a strange book, but will lead you to a wonderful world.
- Accurate translation: This is a wonderful book, it will lead you to a world of surprises.

April 8, 2018
Learning is More On Demand
What I Learned When My Students Used Google Translate
Diane Loyd, The Chronicle of Higher Education

- But the second language acquisition is a steady process, if you take a cure to do, that is, chronic diseases and even health care, unlike acute disease, once the recipe to treatment, the consequences will soon be reflected.
**June 7, 2017**

*Learning is On Demand*

Personal Digital Assistants (PDA)

**Questions:**
- How will PDA’s work in education? Who builds them? And who decides the functions?

**May 9, 2018**

*Learning is More On Demand*

Google Duplex Demo from Google IO 2018

Video (4:11): [https://www.youtube.com/watch?v=bd1mEm2Fy08](https://www.youtube.com/watch?v=bd1mEm2Fy08)


Donald Clark Plan B

[http://donaldclarkplanb.blogspot.ca/2018/05/google-just-announced-ai-bot-that-could.html?m=1](http://donaldclarkplanb.blogspot.ca/2018/05/google-just-announced-ai-bot-that-could.html?m=1)

**April 17, 2017**

*Learning is More Blended*

Facebook’s future will blend physical and digital worlds

Jessica Guynn, USA Today


**February 16, 2017 (Customization)**

*Learning is More Communal*

Building Global Community, Marc Zuckerberg, Facebook


**March 6, 2018**

*Learning is More Competency-Based*

Degreed gets $42M to help build a tool to help employees learn the right skills

Matthew Lynley, TechCrunch


**March 21, 2018**

*Learning is More Massive*

Biz Nation

EdTech startup focused on empowering youth with technology skills, soft skills, entrepreneurship and financial intelligence through a methodology that improves user’s learning about creating a business.

[https://www.thebiznation.com/](https://www.thebiznation.com/)
October 30, 2017
Learning is More Massive
Report: 59% of employed data scientists learned skills on their own or via a MOOC
Alison DeNisco Rayome

June 15, 2017
Learning is More Massive
MOOCs for Credit
Class Central
https://www.class-central.com/report/moocs-for-credit/

May 11, 2018
Learning is More Massive
MOOCs Are Not the Social Mobility Tool We Hoped For
Sara Hardman, New Learning Times

July 28, 2016 (Customization)
Learning is More Modular
Udemy: “Get cozy with a class”
https://www.udemy.com/

December 17, 2017
Learning is More Massive
Woz U Has Made Some Big Promises. Can It Deliver?
Henry Kronk, ElearningInside News
https://news.elearninginside.com/woz-u-made-big-promises-can-deliver/
30+ Ways Learning is Changing: Recapping the Three Mega Trends: Engagement, Access, and Customization

Question: What are the consequences for education and e-learning?

The Future of Learning Plague
The new "Four Horsemen" of the Apocalypse: Quality, Copyright, Plagiarism, and Assessment...

April 8, 2018
Pros and Cons of Virtual Reality in the Classroom

Pro:
An art professor might virtually guide students in his rural-Kentucky classroom through an exhibit happening in Paris, allowing them not only to explore works of art but also to virtually hold and examine them up close.

Con:
A biology class might virtually travel down DNA strands previously visible only through a microscope.

We need to be having conversations about the ethics of using virtual reality in the classroom. Just because we have the ability to virtually transport a student to a war-torn country or a historical moment in time does not mean we should do so without thinking of possible consequences. What ethical obligations might faculty members owe our students during these experiences?

April 8, 2018
How Ed Tech Is Exploiting Students

Eric Tornoe, a professor at St. Thomas University, in Minnesota, and his teaching assistants saw a late-night demonstration of technology that could guess, with reasonable accuracy, ages and genders of people in the room. Thinking about other applications of the technology, Tornoe quickly landed on the potential information hidden within students' emotions. He envisioned professors' using that information to ensure that a greater percentage of lecture material engaged students and stuck in their minds. Microsoft lent Tornoe's team the facial-recognition and emotion interfaces, free of charge, as well as the necessary software.

Ashok K. Goel, a professor at the Georgia Institute of Technology, used IBM's "Watson" technology to test a chatbot teaching assistant on his students for a semester. He told them to email "Jill" with any questions but did not tell them that Jill was a bot.

When our smartphones leave us out of touch

Brett Molina, USA Today

• When we walk while texting or our smartphone leaves us, people can see it.
• In Quebec, a mother was charged with child neglect after her 10-year-old child walked into traffic while using his smartphone.
• In a New York City, parents spent $18,000 on an app to track their kids.
January 14, 2018
Facebook invites you to live in a bubble where you’re always right
Callum Borchers, The Washington Post

May 17, 2018
Will Google Duplex Evolve Into a Virtual Teaching Assistant?
Joshua Kim, Inside Higher Ed
https://www.insidehighered.com/blogs/technology-and-learning/will-google-duplex-evolve-into-a-virtual-teaching-assistant

May 14, 2018
“How Frightened Should We Be of A.I.?”
How Frightened Should We Be of A.I.?
Tad Friend, The New Yorker
https://www.newyorker.com/magazine/2018/05/14/how-frightened-should-we-be-of-ai

“Superior Intelligence.”
How Frightened Should We Be of A.I.?
Tad Friend, The New Yorker
https://www.newyorker.com/magazine/2018/05/14/how-frightened-should-we-be-of-ai

June 2018
How the Enlightenment Ends
Henry A. Kissinger, The Atlantic
May 11, 2018
Humanoid robot runs through the park by itself
Lisa Fischer, CNN Tech

January 30, 2017
1. Professor Einstein PDA’s

February 27, 2017
2. World Knowledge Refreshment Stations
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

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

December 21, 2017
A Robot Goes to College
Lindsay McKenzie, Inside Higher Ed

January 3, 2018
CES 2018: Your guide to the biggest consumer electronics show
USA Today
June 3, 2016
4. Explosion of Virtual Reality
VR Lets Med Students Experience What It's Like To Be 74
Elyse Wanshel, Huffington Post
http://ht.ly/bSpe300XEPJ

Facebook Spaces is a new social VR hang out area that allows owners of Oculus Rift and Touch to interact in virtual reality. (Photo: Facebook)

September 4, 2017
5. Web Conferencing
Global Learning Partner or PBL Team Selection Walls
http://www.thelivingmoon.com/43ancients/02files/Library_Alexandria.html

Facebook Spaces is a new social VR hang out area that allows owners of Oculus Rift and Touch to interact in virtual reality. (Photo: Facebook)

February 27, 2017
Henry Kronk, E-learning Inside News
https://theumlaut.com/binge-learning-is-online-education-s-killer-app-84da18f8ae76

November 1, 2017
7. Rise of Super E-Mentors

November 2, 2017
8. Café Classroom and Café Connectedness
9. Instructional Designer Morphs into Learning Environment Engineer

10. The Age of Personalization

March 28, 2017
11. Elon Musk’s Neuralink wants to plug into your brain, Marco della Cava, USA Today (includes 34 second video)

Elon Musk’s Neuralink Seeks to Link Minds to a Computer

April 25, 2018
12. Deliberate Innovation, Lifetime Education
Commission on Creative the Next in Education
Georgia Tech University, Office of the Provost

Poll: Evolution or Revolution?

Poll: Or does all this give you a headache?
Not Me...I am happy!  
and...  
My minions are happy!

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

Things are heating up!

The Learning Revolution is coming within reach!

Remember...  
“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: cjbonk@indiana.edu