MOOCs: Future Trends and Insights for the Education 4.0 Revolution

Curtis J. Bonk, Professor, Indiana University

cjbonk@indiana.edu
http://mypage.iu.edu/~cjbonk/

Talk Overview

1. Education 20/20 and Education 4.0
2. New Roles of the Instructor
3. First and Last Principles of Instruction
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-of-instruction.html
Education 20/20

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 (Education 4.0?)
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
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

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

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

4. The Principle of Cheerfulness and Optimism
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

5. The Principle of High Expectations
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html

6. The Principle of Choice and Options
http://travelinedman.blogspot.com/2011/05/bonks-last-principles-of-instruction.html
7. The Principle of Empowerment and Autonomy

8. The Principle of Support and Feedback

9. The Principle of Spontaneity

10. The Principle of Organization

11. The Principle of Sharing

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

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

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

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

18. The Principle of Cognitive Apprenticeship
http://travelinedman.blogspot.com/2011/05/bonks-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)

Mimeograph machine.
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

Education 3.0
The Genesis and Emergence of Education 3.0 in Higher Education and its Potential for Africa
First Monday, by Derek Keats and J. Philipp Schmidt, March 2007

Now What is Education 4.0?
http://www.krukittin.info/?p=744

Table 1: Educational paradigms in higher education

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Education 1.0</th>
<th>Education 2.0</th>
<th>Education 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodology</td>
<td>Lecture-based</td>
<td>Online</td>
<td>Self-directed</td>
</tr>
<tr>
<td>Interaction</td>
<td>Individual</td>
<td>Group</td>
<td>Peer</td>
</tr>
<tr>
<td>Course Structure</td>
<td>Linear</td>
<td>Non-linear</td>
<td>Flexible</td>
</tr>
<tr>
<td>Learning Style</td>
<td>Passive</td>
<td>Active</td>
<td>Interactive</td>
</tr>
</tbody>
</table>

Thailand Education 4.0
Now What is Education 4.0?
"Innovation-producing education. Learn more in: Development of Individual Agency within a Collaborative, Creative Learning Community"
http://www.igi-global.com/dictionary/education-40/41755
https://www.chula.ac.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
https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/
http://www.tubechop.com/watch/8280981

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/

August 21, 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

February 21, 2017
UC students build 3D-printed prosthetic hands for kids, Kate Murphy, Cincinnati.com
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/

Walter Isaacson (2014)

John Markoff (2015)
http://www.amazon.com/Machines-Loving-Grace-Common-Between/dp/0062266683

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

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

February 27, 2017
Robots will outnumber humans in 30 years, Softbank says
Edward C. Baig, USA Today
February 27, 2017
Robots will outnumber humans in 30 years, Softbank says
Edward C. Baig, USA Today

• One of the chips in our shoes in the next 30 years will be smarter than our brain. We will be less than our shoes. And we are stepping on them.
• Softbank’s Son notes that today, an average IQ for a person is around 100. If you’re an Einstein or Da Vinci your IQ is around 200 mark, and you’re considered a genius. In contrast, Son believes AI-infused computers will eventually have an IQ of 10,000. “This burst of superintelligence,” he says, “is going to become a reality.”

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

Letsee is an AR app from a South Korean company that allows consumers to use a smartphone and see reviews directly overlaid on a product.

June 3, 2016
Virtual Reality Lets Med Students Experience What It’s Like To Be 74
Elyse Wanshel, Huffington Post
http://ht.ly/bSpe300XEPJ

One VR diversity demo places the user in the body of an African-American woman as a white male avatar gets aggressively macrophobic. (In one Stanford VR demo, subjects are made to feel what it’s like to be homeless, as in this scene where the user is transported into the body of a woman riding the bus with her possessions.)

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 man avatar gets aggressively macrophobic. (In one Stanford VR demo, subjects are made to feel what it’s like to be homeless, as in this scene where the user is transported into the body of a woman riding the bus with her possessions.)

June 3, 2016
Virtual Reality Lets Med Students Experience What It’s Like To Be 74
Elyse Wanshel, Huffington Post
http://ht.ly/bSpe300XEPJ

Letsee is an AR app from a South Korean company that allows consumers to use a smartphone and see reviews directly overlaid on a product.

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

Microsoft HoloLens:
https://www.youtube.com/watch?v=aThCr0PsyuA
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 Revolutioning Education

February 22, 2017
Digital citizenship lessons from a 9-year-old with 18,000 Twitter followers, Alan November, eSchool News

August 5, 2015
Shubham Jaglan (10 years old) Overwhelmed by “Dream” Return Home After Double World Championship
Disha Chopra, NDTV Sports

April 20, 2015
250 MOOCs and Counting: One Man’s Educational Journey, Chronicle of Higher Education
If the MOOC movement has faded, nobody told Jima Ngei, Mr. Ngei, who lives in Port Harcourt, Nigeria, has completed and passed 250.

Jima Ngei: “I had this unrelenting fear that this miracle of free access might evaporate soon.”
July 2016
I. Elaine Allen and Jeff Seaman, Babson Survey Research Group

January 3, 2017
College is Over
Roger Schank, LinkedIn

The Evolution of E-Learning (All 7 year cycles)
Phase I, 1994:
THE AGE OF PORTALS AND PAGES (NETSCAPE GOES PUBLIC).

Phase II, 2001:
THE AGE OF OPENNESS (MIT OCW & WIKIPEDIA BORN).

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, UNIV. OF TORONTO
1987: HYPERCARD FIRST SHIPPED.

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

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

August 6, 2016
The Web is 25!
Happy (sort of) birthday, World Wide Web!, Erica Fink and Jonathan Tottora, CNN Money (Tech)
http://info.cern.ch/ (First website)
http://info.cern.ch/hypertext/WWW/TheProject.html
1971
Email is 35 years old!
Raymond Tomlinson, inventor of modern email, dies, USA Today (March 7, 2016)

Invented: May 24, 1844
150 Years since Lincoln needed the Telegraph (T-Mail)
Mr. Lincoln’s T-Mails: How Abraham Lincoln Used the Telegraph to Win the Civil War, Tom Wheeler (2008).

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

30+ Ways Learning is Changing: The Mega Trends

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

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 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

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

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 increase over the next several years, achieving a compound annual growth rate (CAGR) of 188 percent over the 2015-2020 forecast period and reaching $143.3 billion in 2020."

Pokemon 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 collegues to jump on the bandwagon.
Learning is More Immersive

The Quest to Put More Reality in Virtual Reality

Edward Baig, USA Today


NextVR crew members set up their virtual reality cameras at an NBA game, allowing viewers of the live event to see the game from a variety of positions in the arena.

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

Learning is More Mobile

World’s Cheapest Smartphone at $3.67


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.

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 content, context, collaboration 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
July 21, 2016
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)

September 28, 2016 (Access)
Learning is More Free
Bookshare, An accessibility online library for people with disabilities
https://www.bookshare.org/

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

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
http://chronicle.com/article/Credit-for-Watching-a-TED/232973/?cid=at&utm_source=at&utm_medium=en

Degreed: https://degreed.com/
November 19, 2015 (Access)
Learning is More Immediate...
A new daddy longlegs named after 'Lord of the Rings' character Smeagol, Mary Bowerman, USA Today

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

Learning is More Direct from Experts

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

June 13, 2016 (Access)
Nine-Year-Old Anvitha Vijay is the Youngest Developer at WWDC (age 9)
(Apple Worldwide Developers Conference), Gadgets

May 4, 2016 (Access)
This Mongolian Teenager Aced a MOOC
Now He Wants to Widen Their Impact
(140,000 people took the MIT MOOC on Circuits and Electronics, 1 of 300 to get a perfect score)
The Chronicle of Higher Education, Jeffrey R. Young
http://chronicle.com/article/This-Mongolian-Teenager-Aced-a/236362
May 19, 2016 (Access)
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)

How Learning is Changing:
Mega Trend #3. Customization

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

February 16, 2017
Zuckerberg: Bonds between strangers can help in divisive times

Zuckerberg: Bonds between strangers can help in divisive times

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

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-mcgunx-groocx

December 25, 2016
Class Central
By The Numbers: MOOCs in 2016
Dhawa Shah, Class Central

December 23, 2016
HarvardX and MITx: Four Years of Open Online Courses -- Fall 2012 - Summer 2016
Isaac Chung, MIT, and Andrew Dean Ho, Harvard
August 12, 2016 (Customization)
Class Central’s Top 50 MOOCs of All Time,
Dhawal Shah, Class Central Blog
"Now there are close to 6,000 MOOCs from 600+ universities around the world."
https://www.class-central.com/report/top-moocs/

A Life of Happiness and Fulfillment
Indian School of Business, Rajagopal Raghnanathan

August 30, 2016
Thousands sign up for free online wine course, John Elmes, Wine News
http://www.decanter.com/wine-news/online-wine-course-adelaide-325646/

August 5, 2015 (Customization)
How Nanodegrees Are Disrupting Higher Education
John Waters, Campus Technology
http://campustechnology.com/articles/2015/08/05/how-nanodegrees-are-disrupting-higher-education.aspx

January 13, 2016 (Customization)
Degree gets you a tech job — or your money back
Marco della Cava, USA Today

July 28, 2016 (Customization)
Coursera Specializations email
Starting Monday August 1st: 9 Top Specializations
MOOCs and Open Education
Around the World

http://routledge.net/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

June 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/

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

MOOC Personalization
Survey Results

1. How many MOOCs have you taught? (N = 152)

Q4: 3. How many MOOCs have you completed as a learner (including any that you are currently enrolled in)?
Answered: 145    Skipped: 10

Q7. What is the delivery format of your most recent MOOC?

8. How many people signed up for your most recent MOOC? (N = 150)
21. Does your most recent (or current) MOOC utilize any of the following? [Check all that apply; N = 127]

- Automated counseling system
- System adaption to user performance
- Embedded agents for student advice
- Automated plagiarism checking/detection (e.g., Turnitin.com)
- Automated group allocation tools
- Automated alerts to students who do not log on regularly
- Automated alerts for missed assignments
- Automated or system generated feedback system
- None of the above

MOOC Research Review, 2014–2017

- Empirical studies between 2014–2017
- 150 studies
- Focus on research methods/paradigms and topics of research

Primary Journals for MOOC Publication (2014–2017)

<table>
<thead>
<tr>
<th>JOURNAL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. International Review of Research in Open and Distance Learning (IRRODL)</td>
<td>33</td>
</tr>
<tr>
<td>2. Computers &amp; Education</td>
<td>11</td>
</tr>
<tr>
<td>3. Online Journal of Educational Technology</td>
<td>9</td>
</tr>
<tr>
<td>4. Online Learning</td>
<td>7</td>
</tr>
<tr>
<td>5. Distance Education</td>
<td>5</td>
</tr>
<tr>
<td>6. Educational Media International</td>
<td>5</td>
</tr>
<tr>
<td>7. Internet and Higher Education</td>
<td>5</td>
</tr>
<tr>
<td>10. Computers in Human Behavior</td>
<td>4</td>
</tr>
<tr>
<td>11. Online Learning</td>
<td>4</td>
</tr>
<tr>
<td>12. Journal of Online Learning and Teaching</td>
<td>3</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>DATE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>27</td>
</tr>
<tr>
<td>2015</td>
<td>69</td>
</tr>
<tr>
<td>2016</td>
<td>52</td>
</tr>
<tr>
<td>2017</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>150</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>GENERAL ANALYTIC METHOD</th>
<th>TOTAL</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUALITATIVE</td>
<td>29</td>
<td>19.3%</td>
</tr>
<tr>
<td>QUANTITATIVE</td>
<td>26</td>
<td>43.3%</td>
</tr>
<tr>
<td>MIXED METHODS</td>
<td>55</td>
<td>37.3%</td>
</tr>
<tr>
<td>TOTAL STUDIES</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>


- DESCRIPTIVE RESEARCH
- CASE STUDY
- COMPARATIVE
- QUANTITATIVE
- PHENOMENOLOGY
- DESIGN BASED RESEARCH APPROACH

- CAUSAL
- COMPARATIVE RESEARCH DESIGN
- INTERPRETIVE CASE STUDY
- MULTI-CASE STUDY ANALYSIS
- LEARNING ANALYTICS
- AUTOETHNOGRAPHY
- CLUSTER ANALYSIS AND CURRICULAR ANALYSES

- EXPERIMENTAL DESIGN
- INVESTIGATION OF THE ACTION ENSHAMED
### Number of Data Sources for MOOC Research (2014–2017)

<table>
<thead>
<tr>
<th>Number of Data Sources</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>57</td>
<td>38%</td>
</tr>
<tr>
<td>2</td>
<td>54</td>
<td>36%</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>16%</td>
</tr>
<tr>
<td>More than 3</td>
<td>15</td>
<td>10%</td>
</tr>
<tr>
<td>Total Studies</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

### Location of MOOC Research Team Members (2014–2017)

- United States
- Australia
- Germany
- Israel
- United Arab Emirates
- Canada
- France
- China
- Total


- Taiwan
- United States
- Germany
- United Arab Emirates
- Spain
- China
- Total

### Focus of MOOC Research (2014–2017)

<table>
<thead>
<tr>
<th>Focus</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-focused</td>
<td>75</td>
<td>50.0%</td>
</tr>
<tr>
<td>Design-focused</td>
<td>48</td>
<td>32.0%</td>
</tr>
<tr>
<td>Context and Impact</td>
<td>21</td>
<td>14.0%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>5.4%</td>
</tr>
<tr>
<td>Instructor-focused</td>
<td>5</td>
<td>3.4%</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td></td>
</tr>
</tbody>
</table>

*Seven studies had more than one area of focus.*

### Specific Topics of MOOC Research (2014–2017)

- Self-regulated Learning
- Motivation
- Engagement
- Cheating
- Social Learning
- Satisfaction
- Assessment Measurement Evaluation
- Professional Development
- Communication/Interaction
- Learners' Experience
- Quality of MOOC
- Retention and Completion/Dropout
- Instructional/MOOC Design
- Pre-College

### Data Sources of MOOC Research (2014–2017)

- Design Narratives
- Discussion/Forum Data
- Survey
- Platform Data
- Focus Group/Interview
- Learning Analytics
- Observation Journals
- Social Media
- Observation

*Survey data includes technical analysis of MOOC platforms and student performance data.*
Audience Poll:
Would you like to research MOOCs now?
A. Yes...
B. No...

January 30, 2017
1. Professor Einstein PDA’s
http://www.usatoday.com/story/tech/2017/01/30/robotic-barista-now-serving-really-fast/95888780/

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

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

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

Looking for a Job
February 27, 2017
3. Global Learning Partner 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.edx.org/course/introduction-philosophy-god-knowledge-mitx-24-00x-1#.

May 4, 2016
6. MOOC Spirituality
MOOC 4.0: The Next Revolution in Learning & Leadership, Otto Scharmer, Huffington Post

7. Rise of Super E-Mentors

8. Café Classroom and Café Connectedness

Poll: Who wants one of these? Starbucks
Starbucks Coffee Korea employees learn how to use the firm's online learning system "Starbucks Academy," which was introduced Wednesday. The two-way learning system provides some 5,000 employees in Korea with online reeducation services, including encyclopedia, latest news, and information about coffee. The system will be rolled out to products in 60 countries to introduce the system.

July 29, 2016
Reimagine Your Learning Space: Starbucks Your Classroom!
Oskar Cymerman, Teaching Channel
https://www.teachingchannel.org/blog/2016/07/29/starbucks-your-classroom/

Sterile, industrial-era rows aren't very attractive or motivating. Even more, I've become convinced that traditional educational settings dull the senses. We know that breaks and interruptions after periods of focused activity actually help in learning, yet we sometimes ask our students to sit for an hour or more with little freedom of movement. I believe the "Starbucks" environment will promote that freedom and movement.

Freedom is the key ingredient to social-emotional well-being and deeper learning. Rows and columns constrict. They hold and stifle. That is the truth. That is the reality in many U.S. classrooms today. But no longer in mine. Never again.

This year, my students will work together every single day and I'll be working with them as part of the team. I will be both facilitator and collaborator as we implement a new, blended learning model. And, we'll be moving around, which is crucial to focus, health, and proper brain function. Humans aren't meant to sit in one place. We are born curious and we learn by exploring our world, which requires all 5 of the senses.

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

Instructional Design
Morphs into Learning Environment Engineer
February 29, 2016

Instructional Design
Demand grows for a new breed of academic
Chronicle of Higher Education, Dann Berrett
http://chronicle.com/article/Instructional-Design/235425
10. The Age of Personalization

Ambient Insight...the self-paced e-learning market — defined by LMS, off-the-shelf content and services — is expected to drop from global revenues of $46.6 billion in 2016 to $33.4 billion by 2021...."the single most unfavorable place to be is the LMS market, which is essentially imploding, particularly in the U.S. corporate segment that has a negative 33.9 percent growth rate."

Things are heating up!

Education 4.0 is coming within reach!
Poll #10:
Who is now interested in Education 20/20...?

Remember for Education 20/20 to meet Education 4.0:
"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."

Poll: Who now wants one of these?
Starbucks

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